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HOO HZM PPAFER JUMPULZ, ODEXA,
THAKURMUNDA



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PREFACE

It is immense pleasure that, Ho Language Education Council, Odisha has published a mathematics text book in warang chity for class –vii students for the first time . Which is prepared by the Board of writers of the said council following the NCERT curriculum and frame work in the current academic session. Looking forward to the bare necessity of the Ho language studied pupils, the topics given the book are selected in the prescribed mathematics book . It might not be easily conceptualized to their understanding, the pupils as well as the teachers are not firmly co-related with the mathematics oriented Ho language text book before. But it is fascinating gradually by the course of time.

Eventually the board of writers and editors prepared the text book by dint of their reckless endeavour and devotion. Still any linguistic and spelling error found in this edition must be paid a special attention to manifest the noble aspiration behind it and trying our best effort to enrich at a global standard of mathematics book for the students in the future.

Padma charan Haiburu
Chairman
HO Language Education Council, Odisha.



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HURR

Herl a hbar[f a\w herl a ! herl a ma[buru hb[ga buru herl a !!
herl a vzw apw ko !!! herl a hga-mexe ko, guru/gurme ko, ptua ko, pndi ; e
ko, bef ua ko, gune ko, i bel h; wan ko snm ko gv herl a. Ade rseka r`
k; ha kna f w, hoo hzm ppaf er jumpul z, odexa rvn o; ol l ko kundul -
kundul ; v jndul k; v ce sewge bere nef a bere kurumutu k; v, peteka, kgol
ar he; a hasa cnb noaw **g] ed** pu; e how arxl - mrxl hoba zna. Roka ; oka
horo boro ptua koa` goroj o\ [noa pu; e mrka zna. Ai bara rvn ptua korv
goroj hoban lvka ; v NCERT o\ [; v ol - ; ol a kna, ar goroj o\ [pi r awka,
p\` awka ar ce; e g] ed cunurr ko vmn noa pu; e rv f hra kna.

Noa g] ed pu; e ptua ko nw nzmr bexz ce huf a ; l a - ml a rv mozd
nma cunurr ; n ; v, p\ao ar somjao korv guru/gurme ar ptua korv hol okoco
hoban gvza. Y\ e o\ [svbv ar sabr hoba l vn rvf o snm haw` f g` ko
how sarel mul e zo` gvza. Pu; e sjao smpo\o kvn ko o; ol ko, kmeza ko pi ke
ko, i ker jebon ; vleq be; ezm jd koa. Huf a ; l a rv f uxeza ko, pucu` ; ul ue
ko ar gl ed ko f o mr l vka l vka ; v i ka kno` ca ar huf a sof ore gv bu f hra
jom ca.

Kaira Singh Bandia
Secretary,
HO Language Education Council



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GLW SKM

	: .a	Bexz	Atl awka
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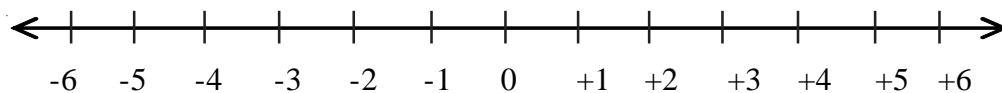


MA{ CT~ PI R AWKA

1.1 Abu okona bu af ana

Abu l ; ar bara pa rv sbar awka , ; rsl sbar awka mvnv rvf o xun l oo` snm sbar awka ar pi r awka ko bu af a svkana. Pi r awka ; l aml a bov zn awka ko awka j l wger v cena v ; oangvza. Pi r awka koo gv j l wge rv bu reka v ; oa kda. Pi r awka kol o` ; v xh, bov vmn bu v ; oa kda. Vl abu phm yra l vka` -

1. L ; ar awka j l wge kv nvl k ; v l ; ar rvz` kono ko hl v pv?



- (l) +2 ; `a z ; v 3 mrw awka f o okona?
- (g) - 3 ; `a z ; v 7 mrw mrw awka f o okona?
- (k) Okon awka +4 ; `az ; v 7 koma?
- (q) Xun(p[]) ; `z ; v 5 mrw awka ko cen z pv?
- (j) Okon awka 0 ; `az ; v 4 koma?
- (c) +5 ; `az ; v hu\le[; vz` i [gul cena +5 i [gul cena (sucoko ben f u) r` okon kute rv ; i na?
- ([]) Vnkn bareza awka ken cen z pv ce, okon awkan be ; ar rv spane[8.Vn l vka ondo` pur` jo\la awka kopv nmv ce?
- (d) - 3 ondo` +2 be ; ar rv spane[f o cemenw?
- (t) Ghr awka rv - 4 ; `az ; v +3 hb` rv mvn` memed awka ko cemen?
- (n) Ghr awka rv +4 ; `az ; v - 3 hb` rv mvn` memed awka ko cemen?

AFANA CE PV?

- 4 ; `z ; v +3 hb` rv memed awka ko nrm l gvd f o ghr awka rv - 4 ; `a z ; v +3 hb` ghr bn de` i dv rv cemez w nmo` a` i mezw gv.



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2. L; ar no; or kono` ko rvz` hnl vmvpv?
- (l) +5 ar +8 rvz` xh med f o cemenw?
 - (g) - 3 ar +8 rvz` xhmed f o cemen?
 - (k) - 7 ar +5 rvz` xhmed f o cemen?
 - (q) - 4 ar - 7 rvz` xhmed f o cemen
 - (j) +8 z ; v +3 bov pv?
 - (c) +5 ; v +7 bov pv?
 - (l) +7 ; v +12 bov pv?
 - (t) +5 ; v +3 bov pv?
 - (n) - 4 ; v +8 bov pv?
 - (f) - 5 ; v - 4 bov pv?

AFA NA CE PV?

- * Ghr awka ; v jv; n awka l oo` gv mozd xhp\` (positive) awka l oo` xhmedv ; n f epel w abu koqjv ; vbua.
- * Ghr awka ; v jv; n awkz ; v mezd xhp\` awka bov ; n f epel w abu v; om pa ; v bua.

- (;) Mozd pi r awkaz ; v vnz ; v mrw ; vz` pi r awka f o bu bov f i z` ce?
- (m) Xunw ; v +8 f o bu bov f i z` ce? ju f e bu f i za vnf o hnl rvf o cemen hobana ol v pv?
- (b) +8 l oo` - 3 xh medv rv cemen, +8 ; v okon awka bu bov rv i men gv hoba na?
- (p) - 3 ; v - 4 bov rv cemen, - 3 l oo` cemen xhmedv rv i men hobao` a`?

AFA NA BU

Ghr awka lvka ; v mezd bovp\` (negative) awka xh medv ; n f epel w, v; om pa ; v svno` ; v hoba bu ; na. Vn lvka gv mezd bovp\` awka bov ol lv ; n rvf o koqjv pa ; vbu svno` a`.

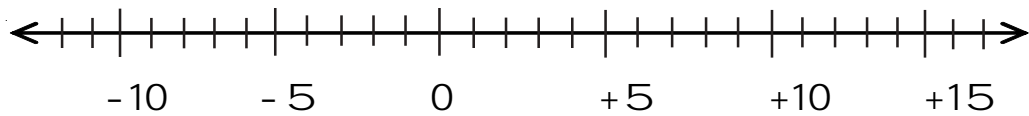


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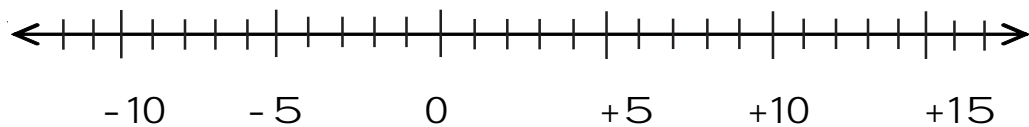
I NE : U{ 1.1

1. L; ar ghr awka rv yf uba kn l vka ; v cvn` hobao` a` ol v pv?

(l).



(g).



2. Koojv kute rv vma kn bharo; nksa rv tzvd tzvd rvz` muse[f en` kom y; arw ; vz` lol orvza joka svl sezos jonoka (scale) ; v vma kna, Vna ko nvl k; v l; ar kono` ko rvz` hnl vmvpv?

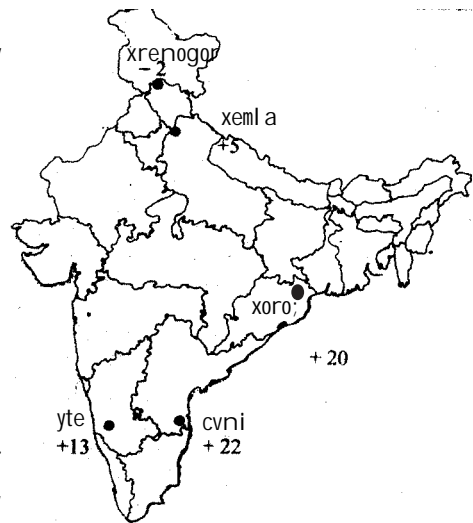
(l) Okon ;` rv lol o rvza l na` gvza?

(g) Okon ;` rv lol o rvza kom y; arwa?

(k) Okon ;` rvz` lol o rvz` be[lur (banglore) rvz` lol o rvza z ; v 8° degre koma.

(q) Xrenogor ar yte rvz` lol o rvza be; ar rv cemen agabareza?

(j) Okon ;` ken rvz` lol orvza be; ar rv 16 degre agabare mvn`.



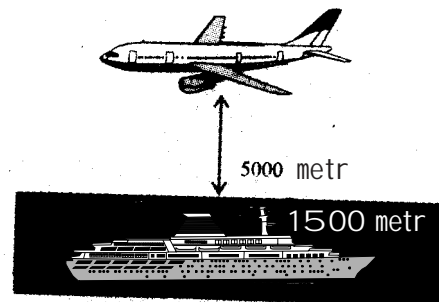
Bharo; nksa



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3. Mezd rv] a sv] a bf a bf e rv mezd kono` rvz` tei k hnl l gvd +1 awka ar l otom hnl l gvd -1 awka ko vmo` a`. Mu; ed p`le rv 25 mowza kvv ; v kono` ko kunul e hoba na, vnl vka gv rnf z ; ekeq kunul e l vn kono` rvz` hnl rv nma kn awka kof o, - 7, - 3, 5 ar - 5. Vn rvf o rnf z gota rv cemen awk` nm l vda?

4. Mexa ; v mezd aper g`le f orvza jokaz ; v 5000 metr serma rv apervn ; n f epel w ynum bowzal f orvza jokz ; v 1500 metr be; ar ; v ynum i f en ; na. Vn rvf o vn bowzl ar aper g`le ken cemen sapne[rv ; i kvna?



Aper ar bowzl g`le

5. Mezd cpakd o\ rv koqjw ; v v; om ; v, cv; nwv ; v l ; ar ; v karv mezd koo rv ; v ondo` mezd koon mule korv mvn` kd awka korvz` xh med sbvn i me; w barabare gvza. Naw` f o kjei pv, l ; arv mvn` reza o\ be; arw ; v okona ma[sgi mvn` ; vz` cpakd o\ ; na?

6. Nvn rv a ar b l gvd nvn awka ko r` gon[i f e k; v a- (-b) = a+b cemen sareza cergl v pv?

(l) a = 12, b = 15, (g) a = 225, b = 321, (k) a = 8, b = 0,
(q) a = 18, b = +16.

7. Srel v pv -

(l) + 5+ (-7) - (-3), (g) -18+ (-3)-12,
(k) + 25- (+7) + (-18), (q) -35 - (-20) + (-14).

8. Xwkare V` ako oa` ; ` z ; v 25 metr ; uro` s` ; v svno` zn cnb ; vb` zn ; ` z ; v 27 metr hsur s` ; v` rua zna. Vn rvf o ako oa` ; ` az okon s` rv cemen sne[rv mvnae za ?

Pte- O\`



9. (l) Xh mened rv cemen hobana ol v pv?
 $-8+7-6+5-4+3-2+1$.
- (g) Awka ko y[ku\ui ; v jo\ao i f e k; v cnb rv xh mened f o cemen hobao` a` tei ke pv?
- (k) Xh mened f o cemen hobana?
 $(-4)+(-3)+(-2)+(-1)+(+2)+(+3)+(+4)$.
- 1.2. Pi r awka ko rv xh rvz` porkar-
 L; ar no; or xh mened ko sof or rv pv.
- (l) $(+50)+(+7)=$ (g) $(+6)+(-3)=?$
- (k) $(-7)+(+6)=$? (q) $(-4)+(-5)=?$

Vma kn xhmed f o cel ekn awka ko ? Nvnz ; v cvn` bu cergl kvda ?
 ju\le kol o` jgr k; v kjei pv. V; o kvdabu-
 Bareza pi r awka ken rvz` xhmed sbvn i me; a mezd pi r awka gv
 hobao` a`.

APV : V BI LVKA PV-

L; ar no; or xh ko medv pv-

- (l) $(+3)+(+5)=?$ $(+5)+(+3)=?$
- (g) $(+8)+(-7)=?$ $(-7)+(+8)=?$
- (k) $(-3)+(+4)=?$ $(+4)+(-3)=?$
- (q) $(-4)+(-2), (-2)+(-4)=?$

Cv; an jl wge ken rvz` xh ken medo ; n ce?

Nvl kvda bu-

$$(+3)+(+5)=8 \text{ ar } (+5)+(+3)=+8$$

Vnka rvf o, +3 l oo` +5 xh med kv rvf o bara bare cemen +5
 l oo` +3 xh medv rvzo i menw gv hobao` a`. Ondo` apeza xhmened ko gv
 vnlvka gv ol lvka pv, cvn` pv v; o kvda cergl v pv?

Jv; n pi r awka gv tzvd of ol bof ol k; v xh medv rv sar pa f o ka
 bof ol o` a`. Abu juf e mezd pi r awka kv a ar ondo` mezd pi r awka kv b

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lvka ; vbu cena kena, vnf o cv; n no; or ; vz` nvl vkabu ol yf ub f i z` jvmon-

$$a + b = b + a$$

Vna ; v bu mvnvza, pi r awka korv xhmened f o tzvd bopof ol a.

APV : V MEXA BI LVKA PV-

VI abu l ; ar rv vmakn peza awka kor` xh mened bu cergl l wgv-

$$(-3) + (-5) + (-2) = ?$$

$$\{(-3) + (-5) + (-2)\} = ?$$

- * Ma[; vz` rv xh med f o cemen hobazna?
- * Fosar` rv xhmed f o cemen hoba zna?
- * Barn keq rv xh med ken bara bare zna ce?
- * Nvnz ; v cvn` pv v; o kvda?

Mvnv rvf o peza awka ko xh medv rvf o , apeza z ; v jv; n bareza ken mexa l w ; v xhr l oo` ondo` mezd awka l oo` xh medv rv medgv sar f o ol l'` .

Sf z` awka korvzo gv vnl vka gv bu v; o l vda.

Vn peza awka ko nvl vka bu cena f i gvza-a, b, c vmn . Ar vna ko rvz` xh ruyp f o nvl v kbu reka f i z` a` .

$$\begin{aligned} &A, b, c \text{ vmn juf e apeza awka ko rvf o, -} \\ &A + (b + c) = (a + b) + c \end{aligned}$$

Pi r awka ko be; ar xh mened f o **f vpv[ga** lvka ; v hobana.

Azr ; vbu af a svka na ce-

$$5 + 0 = 5, \quad 9 + 0 = 9, \quad 74 + 0 = 74.$$

Ondo` gybu nvl vka f i z` honw-



$(-3) + 0 = (-3)$. Naw` f o mr kjei pv-

(l) $(-7) + 0 = ?$ (g) $(-12) + 0 = ?$

(k) $(-27) + 0 = ?$ (q) $0 = (-43) = ?$

Mezd pi r awka l gvd cena a reka kv ; v cv; n rvz` xhmened f o nvl vka bu reka yra f i z` -

a mezd pi r awka rvf o honw-

$$a + 0 = 0 + a = a$$

Nvl kvdabu mezd pi r awka l oo` xun kvbu xh medv rv sar f o muy\ u pi r awka l oo` gv barabareza. Xh rvz` nvn nezm f o **kaaf vr** nezm ko mv; ` . L; ar rv vma kn xh ko smtaoz l oo` sar ko f o p[ka okoa korv ol v pv.

Kjei pvce?

(l) $(+5) + (-5) =$

(g) $(+8) + 9 - 8 =$

(k) $(-12) + 9 + 12 =$

(q) $(-15) + (+15) =$

(l) $(-7) + (*) = -7$

(g) $(*) + (-4) = -4$

(k) $(-8) + (*) = -18$

(q) $(*) + (-28) = -28$

Nvl kvda bu pi r awka ko be; ar rv mu; ed xhr p\` awka r` l gvd, vnkn bovp\` awka ko mvn` jvmon muy\ u awka l oo` ; v vn awka rvz` xh med f o xun hoba na. Vn ka gv pi r awka ko be; ar rv, mu; ed bovp\` awka ko l gvd mepezd vnkn xhrp\` awka ko mvn` , muy\ u awka l oo` vn awka kv xh medv rv sar f o xun hobao` a`. Nvl vkn awka ken f o **herumvza** awka ko mv; ` . Mvrv rvf o nvl v ka bareza **heru mvza** awka ken rvz` xh med f o xun gv hoba o` a` .



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Nvlvkn awka ken f o **xh smpuy** ko mv;`. Cena kol o` vn kje kv nvlv kbu ol rua f i z` a`. -

a mezd pi r awka rvf o-

$$a + (-a) = (-a) + a = 0$$

Pi r awka korv xh medv rvz` **xh smpuy** nezm ko mv;`.

HNAL KO OLV PV-

1. Reza pi r awka ken ol v pv okna rvz` xh med f o mezd bov p` awka ; na.
 - (l) Bareza z ; v f o mezd f o xhr p` ar mozd f o bov p` hba o` ma.
 - (g) Bareza jkv bov p` hba o` ma.
 - (k) Bareza z ; v mezd f o xun(p[]) hba o` ca.
2. Vnkn bareza awka ken ol v pv okona rvz` xh mened
 - (l) Apv ol a kd snm awka koz ; v hu`e[a.
 - (g) Ol a kd ; vz` koz ; v mezd v ; v f o hu`e[ar mezd v ; v f o mrw hba o` ca.
 - (k) Ol akd awka koz ; v f o sbvn koz ; v f o mrw hba o` ca.
3. Bareza pi r awka ken ol v pv jvmon reza rvz` bov sarv`
 - (l) Mezd bov p` awka
 - (g) Ol a kd sbvn awka ko ; `z ; v hu`e[' ` ca.
 - (k) Ol akd mu; ed awka ko ; `z ; v mrwo` ca.
 - (q) Xun(p[])

AFA NA CE PV?

$(-3) + (-5) = -8$ Nvn menexa rv xh med mexa kn mu; ed awka ko ; `z ; v hu`e[a.

1.3 Bov ol l v ; v z` nezm-

(l) V l a b u` awka ken rvz` bov sarv` bu nvl v za . P[ka okoa rv bov sarv` ol v pv.

(l) $(+5) - (+3) = \boxed{}$ (g) $(+8) - (-2) = \boxed{}$

(k) $(+2) - (+5) = \boxed{}$ (q) $(-3) - (-4) = \boxed{}$

(j) $(-5) - (-2) = \boxed{}$ (c) $(-4) - (-4) = \boxed{}$

Cv; n no; or bov sarv koo gv mepezd pi r awka ko.

Abu nvnz ; v cvn` kopv v; o kvda? V; o kvda bu bareza pi r awka ken rvz` bov sarv` zo gv mezd pi r awka . Pi r awka ken be; ar rv bov nezm **bovpov** nezm l vka ; v hoba na.

Bareza awka ken l gvd cena a ar b f o bov pov nezm ; v nvl vka bu ol f i z` a` . -

a ar b bareza pi r awka rvf o-
a - b sbvn i me; a pi r awka gv hoba na.

Atkar ; a pv-

$5 + (-3)$ cemen $5 - 3$ no i men gv.

$5 + (-3) = 5 - 3.$

Nvl v pv, nv n;` rv $5 = (-3)$ f o mezd xhmed pi te, okona $5 - 3$ l vka ; v bu yf ub l vda. $(5 - 3)$ medo bov ol l pi te. Nvl vka mvn f i zo` a` ce, pi r awka korv mu; ed xhmed pi te kv bov ol l pi te rv yf ub f i zo` a` .

Af ana bu pir awka rv xhmed pite f o **xhsmpuy** nezm ,**xh f vpv[ga** nezm ar **xh kaaf vr** nezm ko lvka ;v svsvna. Ma[' ` awka rvz` pir awka rvz` bov ol l pite f o cv; n no; or nezm ;v svsvna ce? Apv ;v nvl lvka pv.

I NE: U{ 1.2

1. L; ar rvz` onol ko p\aoz pv . Tei k ; ` rvf o tek (✓) cena ,ar lotom ; ` rv f o (×) xar cena reka ; a pv.
 - (l) Bareza pi r awka rvz` xhmed f o mezd pi r awka gv hobao` a` .
 - (g) Bareza pi r awka rvz` bov sarv` sbvn ime; a mezd bovp\` awka hoba na.
 - (k) Pi r awka korv xh **kaaf vr** f o hoban ; na 0.
 - (q) Bareza pi r awka be; ar rv hu\ e[awka z ;v mrw awka ;v ka bov f i zo` a` .
 - (j) Xunw(p[) ;v jv; n awka gv bov rvf o, bov sarv` f o sbvn ime; a bovp\` gv hobana.
2. L; ar no; or p[ka ko pvrv` ; a pv.
 - (l) $(+3)=(...)=0$, (g) $(-7)+(...)=0$,
 - (k) -8 xhmed **smpuy f o** (..) .
 - (q) 0 rvz` **xhmed smpuy** f o hoba zna (..) .
 - (j) Pi r awka (..) V'` xhmed **smpuy** ; na
3. L; ar rv mvn` kono` rvz` koqjv rv mvn` tku be; arw ;v tei k xbf gv ;ye ol l kw ;v p[ka ko pvrv` ; a pv.
 - (l) $+3$ rvz` xhmed **smpuy** ; ` z ;v $+3$ () f o $-(hu\ e[$ ce mrwa)
 - (g) $+5$ rvz` xhmed **smpuy** ; ` a z ;v -5 () f o (mrwa ce hu\ e[a)
4. (l) Vnl vkn bareza pi r awka ken ol v pv, okna rvz` xhmed f o ol a kn mu; ed awka koz ;v mrwa.



- (g) Vn l vkn bareza pi r awka ken ol v pv , okona rvz` xh med f o ol kn mu; ed awka koz ; v hu\ e[a.
5. > , = < , Be; ar rw ; v tei ke cena kv sl a k; v p[ka o\` rv pvr v` ; a pv.

- (l) +3 xh med **sm puy** - 3 rvz` xh med **sm puy**.
- (g) - 5 rvz` xhmed sm puy - 7 rvz` xhmed sm puy.
- (k) 3 rvz` xhmed sm puy 5 rvz` xhmed sm puy ; na.
- (q) +9 rvz` xhmed sm puy - 4 rvz` xhmed sm puy ; na.
- (j) - 4 rvz` xhmed sm puy 0 rvz` xhmed sm puy.

1.4. **pi r awka rv xahr sgom-**

Abu af an ; vz` awka be; arw ; v xahr sgom ko bu nvl a kda. Naw` f o pi r awka ko be; ar rv xhr sgom bexz rvbu por; a\ l w gv. Pi r awka ko apwv rokoma, vna kof o- xhp\` ,bovp\` ar xun ce p[. Vna ; v pi r awka be; ar rv jv; n pni te gv jgrv f epel w, nvna ko nvl ; orsz goroja.

- (l) Xhp\` awka l oo` xhp\` awka rvz` xahr sgom.
- (g) Xhp\` awka l oo` xun rvz` xahr.
- (k) Xhp\` awka l oo` bovp\` awka rvz` xh mened.
- (q) Xun l oo` xhp\` awka rvz` xhmened.
- (j) Bovep\` l oo` xhp\` rvz` xh mened.
- (c) Bovep\` awka l oo` bovp\` awka rvz` xhmened.
- Nvl vka ; urui rokom ; v nvna por; a\ o f i zo` a`.

**(f) Xhp\` awka loo` xhp\` awka rvz` xhmened-**

Sf z awka korv xahr sgom lvckomv f epel w xhp\` awka loo` xhp\` awka rvz` xh mened kobu por; a\o svka ;da. Nvn;` rvf o xahr f f o vn awka ko rvz` pn;e xh med lvka ;v reka lvn ;i kvna, vna f o-

$$5 \$ 3 = 3 + 3 + 3 + 3 + 3 \text{ karv f o } 5 + 5 + 5$$

Nvna ;v mezd xhp\` pi r awka loo` ondo` mezd pi r awka rvz` xahr sgomo gv xhp\` awka loo` vn awka rvz` pn;e xhmed lvka ;v i f e f i zo` a`. Vna f o nvl vka-

$$\begin{aligned} (+5) \$ (+4) &= (+4) + (+4) + (+4) + (+4) + (+4) \\ &= (+8) + (+4) + (+4) + (+4) \\ &= (+12) + (+4) + (+4) \\ &= (+16) + (+4) \\ &= +20. \end{aligned}$$

Vl a bu vna f o ghr awka rv mexa bu nvl lvka`a.



Apv vn lvkagv (+6) \$ (+3) \$ (+7) k;v xahr ko ol v pv. Mu; ed xahr rv bu nvl vza ce bareza xhp\` awka ken rvz` xhr sgom mezd xhp\` awka ;na.

(g) Xhp\` awka koloo` xun rvz` xahr-

Abu ne; era kn sf z nezm ko rv xun loo` ka xun xahr i me; w bu ;h\o svka ;da. Vna ;v abu af a n ace-

5 \$ 0=0 ce (+5) \$ 0=0, vn lvka gv 0 \$ 3= 0 ce 0 \$ (+3)=0

(k) **Xhp\` pir awka loo` bov p\` pir awka loo` xahr-**

Af ana pv-

$$(+4) \$ (+5) = 4 \$ 5$$

=5 + 5+ 5 + 5= 20 .Cvn` ce 4 \$ 5 hobao` ; na 4za 5 rvz` xh mened ce menexa. Xhp\` pir awka loo` bovp\` pir awka rvz` xahr kv zo vn lvka gv pn; e rv bu xh med f i za ce? Vza ol f i z` bu. Ondo` med lvka ; vf o, 4 \$ (- 5) kv 4 za - 5 rvz` xh med lvka bu ol f i z` a`. Jvmon-

$$(+4) \$ (- 5)=4 \$ (- 5)$$

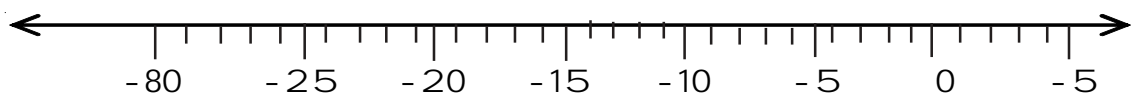
$$=(- 5) + (- 5) + (- 5)+ (- 5)$$

$$=(- 10)+(- 5) + (- 5)$$

$$=(- 15)+ (- 5)$$

$$=- 20.$$

VI abu ghr awka ; v mexa bu bi lvka a`.



Nvl kvda bu ce- (- 5)+ (- 5)+ (- 5)+ (- 5)=20

Vna ; v 4 \$ (- 5)=- 20

Ghr awka ; v apv ; vgv xahr sgom ko ol l jom pv-

(l) 3 \$ (- 2), (g) 4 \$ (- 3), (k) 5 \$ (- 5), (q) 5 \$ (- 8).

Nvl kvda bu, mezd xhp\` pir awka \$ bov p\` pir awka= bov p\` pir awka.



Jvmon-

Awka ken	Xahr sgom	Xahr sgom r` ptvd l vka
3, (- 2)	- 6	-(3 \$ 2)
4, (- 3)	- 12	-(4 \$ 3)
5, (- 5)	- 25	-(5 \$ 5)

Cv; n no; or xahr kof o nvl vkao bu reka f i z`.

$$4 \$ (- 5) = -(4 \$ 5) = -20.$$

$$5 \$ (- 3) = -(5 \$ 3) = -15$$

(q) **Bovp\` pir awka loo` xhp\` pir awka rvz` xahr-**

L; ar no; or xahr ko nvl vpv-

$$4 \$ 3 = 12, 3 \$ 3 = 9 = 12 - 3$$

$$2 \$ 3 = 6 = 9 - 3$$

$$1 \$ 3 = 3 = 6 - 3$$

$$0 \$ 3 = 0 = 3 - 3$$

$$-1 \$ 3 = 0 - (3) = -3.$$

Vnl v ka gv nvna kof o apv ; v bi e pv- (cv; an` l vka gv)

$$2 \$ 3 = -3 - () = \dots\dots\dots (\text{azar` xahr sgomv ; v 3 koma})$$

$$-3 \$ 3 = () - () = \dots\dots\dots (\text{azar` xahr sgomv ; v 3 koma})$$

$$-4 \$ 3 = () - () = \dots\dots\dots (\text{azar` xahr sgomv ; v 3 koma}).$$

Azarw ; vbu af a nace-

$$3 \$ (- 4) = -12$$

$$\text{Vnz ; vbu nvl kvda, } (- 3) \$ 4 = -12 = 4 \$ (- 3)$$

Nvl v k; v xahr sgom ko bu nm hundeza.

G } E D

L; ar no; or p[ka ko pvr̃v` ; a pv-

$$-4 \$ 6 = 6 \$ (\dots) = -(\dots \$ \dots) = \dots$$

$$-3 \$ 8 = \dots \$ (\dots) = -(\dots \$ \dots) = \dots$$

$$-5 \$ 4 = \dots \$ (\dots) = -(\dots \$ \dots) = \dots$$

Abu nvl kvda ce-

$$3 \$ (-5) = - (3 \$ 5)$$

$$3 \$ (-5) = \{ 3 \$ (-5) \text{ rvz` } \mathbf{xh \text{ smpuy}} \} = -3 (3 \$ 5) = -15$$

Nvna ondo` nvl vkao bu reka f i z` -

1. Xahr sgom ko nmv pv-

$$(l) \quad 8 \$ (-12), \quad (g) \quad 14 \$ (-9), \quad (k) \quad (-18) \$ 8,$$

$$(q) \quad (-16) \$ 12, \quad (j) \quad (-15) \$ 16.$$

1. P[ka ko pvr̃v` ; a pv.

$$(l) \quad 15 \$ (-18) = - (15 \$ \dots) = \dots$$

$$(g) \quad 16 \$ (-12) = - (\dots \$ 12) = \dots$$

$$(k) \quad (-18) \$ 12 = - (\dots \$ \dots) = \dots$$

$$(q) \quad (-21) \$ 14 = - (\dots \$ \dots) = \dots$$

$$(j) \quad (\dots) \$ (-18) = (-18) \$ 16 = - (\dots \$ \dots) = \dots$$

3. **Bareza bovp\` pir awka ken rvz` xahr-**

Apv $5 \$ (-4)$ ar $(-7) \$ 6$ rvz` xahr sgom ko pv ol l v; oa kda.

Nm; um f o, $(-4) \$ (-3)$ rvz` xahr sgom cel eka bu ol l za mexa bu nvl lvka a`.

Af anabu ce,—

$$-4 \$ 3 = -12$$



G } E D

$$-4 \$ 2 = -8 = -12 + 4 = -12 - (-4)$$

$$-4 \$ 1 = -4 = -8 + 4 = -8 - (-4)$$

$$-4 \$ 0 = 0 = -4 + 4 = -4 - (-4)$$

$$\text{Vn l vka gv } -4 \$ (-1) = 0 + 4 = 0 - (-4) = +4.$$

Vn l vka gv nvna ko ol purz pv-

$$(-4) \$ (-2) = 4 - 9 - 4 = 4 + \dots = \dots$$

$$(-4) \$ (-3) = 8 - (\dots) = \dots + \dots = \dots$$

- (f) $(-4) \$ (-3)$ cel eka reka l vna, vnl vka gv $(-5) \$ 4$; v vtv` kw ; v $(-5) \$ (-6)$ rvz` xahr sgom cemen hoba na kjei pv.

- (g) $(-6) \$ 3$; v vtv` kw ; v $(-6) \$ (-7)$ rvz` xahr sgom cemen hoba na ol l v pv?

Nvl svka kda bu-

Azar` xahr sgom kobu nvl kv rvbu atkarvza.

$$(-4) \$ (-3) = +12 \text{ (cel eka ce } (-4) \$ (-3) = (+4) \$ (+3) \text{)}$$

Bareza bovp` rvz` xahr sgom = Vn awka ken rvz` xhmed **smpry**.

Cena kol oo` ; v cv; n no; or bohr f o nvl v ka bu reka f i z` a`.

$$\text{a ar b xhp` pi r awka rvf o,} \\ (-a) \$ (-b) = + (a \$ b)$$

Apv ; v bi l vka pv-

L; ar rv vma kn okoa ko i f ei pv ce okon rv - 71 ; v + 71 hb` awka ko ol a kno` a`.

G } ED

- 71	- 70	- 69	- 68	- 67	- 66	- 65	- 64	- 63	- 62
- 52	- 53	- 54	- 55	56	- 57	- 58	- 59	- 60	- 61
- 51	- 50	- 49	- 48	- 47	- 46	- 45	- 44	- 43	- 42
- 32	- 33	- 34	- 35	- 36	- 37	- 38	- 39	- 40	- 41
- 31	- 30	- 29	- 28	- 27	- 26	- 25	- 24	- 23	- 22
- 12	- 13	- 14	- 15	- 16	- 17	- 18	- 19	- 20	- 21
- 11	- 10	- 9	- 8	- 7	- 6	- 5	- 4	- 3	- 2
+ 8	+ 7	+ 6	+ 5	+ 4	+ 3	+ 2	+ 1	0	- 1

Vn lvka gv + 71 hb` purz pv.

- * Mezd tu[ke rv ypuneza cl kd ko i f ei pv, vn be; arw ; v bareza punde ar bareza hwwf v ; vz` ; i n ca.
- * Punde cl kd rv mvn` ; u\` kof o xhp\` mvn; v bu y\`u` i ca ar hwwf v ; u\` kof o bovp\` mvn; vbu mna; e[v ca.
- * Mu; ed i nu[; n ko mepezd **saro** ko i f ei ca ar i nu[vnvzob rv vn saro kv bord(board) rvz` xun ol a kn okoa rv vmv pv. Mu; ed i nu[; n ko ; nga f pi saro i f e jom ca.
- * Medo i nu[; ne` i nu[mu; ed tu[ke be; ar ka kozo` k; v bareza cl kd keqv` ; ezu` rkbv ca. Vna ken gunu ; a pv. Vn cl kd ken rvz` awka ken xahrsgom lvka pv. Vn xahr sgom hobazna vna rvz` awka. Vn cnb vn cl kd ken ondo` mexa tu[ke rv hoob rua ; a pv.
- * Xahr sgom juf e xhp\` ; na, vna rvz` saro f o i menw okoa+ 71 pa ; v i dv pv. Juf e xahr sgom bovp\` ; na, vnf o sarof o i mezw okoa- 71 pa ; v i dv pv.

* Okoz ma[; v + 71 ; ` rv` bvtana, i ne` gv je; ekr.

Juf e swge ko i nu[; na, vnf o f i zo` ; n i nu[e` bgv k; v vt` ko akoa` i nu[rvko azrvv na. Medo cnb medo ko f i zo` a`. Okoz` saro ma[; v + 71 rv bvtana, i ne` f o hobazna ma[, Vncnb f i zo` ; ne` f o f osr, Vnlvka ako be; ar rv ; vsr, pun, mo] v vnlvka ko hobao` a`.

Ma[a kne` i nu[e` f o` nmvza 10 awka, f osr ; ne` f o 8, ; vsr ; ne` f o 5 ar puna kne` f o 3 awka` nmvza.

Vn lvka mezd bje i nu[cnba rv ondo` mezd bje i nu[hoba na. Bareza bjerv okoz` f ni cerglo` a`.

1.4.1 Apeza karv swge bovp\` awka korvz` xahr sgom-

Abu nvl a kda bu, bareza bovp\` pi r awka ken rvz` xahr sgom f o mezd xhp\` pi r awka ; na. Ondo` gv bu nvl a kda, mezd xhp\` pi r awka ar mezd bovp\` pi r awka rvz` xahrsgom f o mezd bovp\` pi r awka ; na.

Naw` f o vla bu, apeza karv swge no` bovp\` pi r awka ko rvz` xahr sgom . Apeza sf z awka ko xahr sgomv f epel w f o cel ekbu xahr sgomv ; i kvna?

$$\begin{aligned} (l) \quad & (-5) \$ (-3) \$ (-4) = \{(-5) \$ (-3)\} \$ (-4) \\ & = \{+(5 \$ 3)\} \$ (-4) \text{ (cvn`rvz`)} \\ & = (+15) \$ (-4) \\ & = -(-15 \$ 4) \\ & = -60. \end{aligned}$$

$$\begin{aligned} (g) \quad & (-5) \$ (-3) \$ (-4) \$ (-2) = \{(-5) \$ (-3) \$ (-4)\} \$ -2 \\ & = (-60) \$ (-2) \text{ (l) rv Nma kn xahr sgom i f eza kna.} \\ & = +(60 \$ 2) = 120. \end{aligned}$$

G } E D

(k) $(-5) \$ (-3) \$ (-4) \$ (-2) \$ (-6) = \{(-5) \$ (-3) \$ (-4) \$ (-2)\} \$ (-6) = (+120) \$ (-6)$

(g) $rv\ nma\ kn\ xahrsgom\ i\ f\ ezna$
 $= - (120 \$ 6) = - 720.$

Cv; n rv nmvzn xahr sgom ko mexa nvl v pv. Cvn` pv nvl v ; na?

- * Bareza bovp` pi r awka rvz` xahr sgom f o mezd xhp` pi r awka.
- * Apeza bovp` pi r awka rvz` xahr sgom f o mezd bovp` pi r awka ; na.
- * Ypuneza bovp` pi r awka rvz` xahr sgom f o mezd xhp` pi r awka.
- * Mo] vza bovp` pi r awka rvz` xahr sgom f o mezd bovp` pi r awka ; na.

APV : V MEXA BI LVKA PV-

L; ar rvz` p\ a kv prv` ; a pv

Cemenw bovp` pi r awka ko; v bu xahr sgomvza.	Xahr sgom cel eka hobao` a`.
Bareza	
Apeza	
Ypuneza	
Mo] vza	
: urui za	
Ai za	
I rl vza	
Arvza	
Gvl vza	



Cv; n p\ a z ; v cvn` ko pv v; o kvda?

- * Jo\ a awka bovp\` pi r awka rvz` xahr sgom f o mezd xhp\` pi r awka ; na.
- * Bejo\ o awka bovp\` pi r awka rvz` xahr sgom f o mezd bovp\` pi r awka ; na.

(k) **Xahr korv kaaf vr-**

Xh korv kaaf vr bexz rv abu bu ; mas svka ; da.

$3 + 0 = 3$, $- 5 + 0 = - 5$ vmn bu v; o svka ; da, jv; n pi r awka l oo` gv xun xhmedv rvf o vn awka l oo` gv bara bareza. Vna ; v O hobazna awka ko be; ar rv xhp\` kaaf vr. Vn l vka gv xahr rvzo bu af ana-

$$+ 5 \$ 1 = + 5, 0 \$ 1 = 0, - 7 \$ 1 = - 7$$

Vna ; v abubu atkar kvda ce jv; n pi r awka gv 1 ; v xahr rv xahr sgom f o vn pi r awka gv hobao` a`. Cena kol o` ; v f o nvl vka bu reka f i z`. -

$$\begin{aligned} & \text{a mezd pi r awka rvf o} \\ & \text{a \$ 1 = 1 \$ a = a} \end{aligned}$$

Nvna f o xahr rvf o kaaf vr nezm mvn; v ko mvnvza. Vn l vka 1 kv xahr sgom kaaf vr mvn; v ko mvnvza. Kjei pvce mezd pi r awka kv - 1 ; v xahr rv xahr sgom cemen hobao` a`? L; ar rvz` ko mexa xahr l vka pv.

$$\begin{aligned} (- 4) \$ (- 1) &= + (4 \$ 1 = + 4 \text{ (+4 hobao` ; na - 4 rvz` xhp\` smpuy)}) \\ (+ 3) + (- 1) &= - (3 \$ 1) = - 3 \text{ (- 3 hoba zna + 3 rvz` xhp\` smpuy)} \\ (- 7) \$ (- 1) &= (- 1) \$ (+ 15) = (- 1) \$ (- 8) = (+ 15) \$ (- 1) \\ &= \text{apv okona napv nvl kvda naw' f o vna gv nvl v kbu kjei rv bugeza.} \end{aligned}$$



a mezd pi r awka rvf o,

a \$ (-1) = (-1) \$ a = -a nvna rvz` xhp\` smpuy ; na.

(q) **Xahr korv f vpv[ga nezm-**

VI abu , - 3 , - 2 ar 5 pi r awka ko bu xahr sgom l vka` .

$\{(-3) \$ (-2)\} \$ 5 = (+6) \$ (+5) = +30$

$(-3) \$ \{(-2) \$ 5\} = 3 \$ (-10) = +30$

Ma[; v, - 3 ar - 2 rvz` xahrsgom nm k; v 5 ; v xahr k; v sgom bu nm kvda + 30.

Cnb ; v - 3 kv - 2 ar 5 rvz` xahr sgom rv sgom nm kvda bu + 30.

Vn l vka nvl kvda bu,

$[(-3) \$ (-2)] \$ 5 = -3 \$ [(-2) \$ 5]$

Apeza pi r awka kv xahr sgomv f epel w, okon bareza ken azar ; v xahr sgom l vna, xahr sgm vna cv; n rv ka tvkd l vna.

Vn kje gv cena vm k; v nvl v kbu ol f i z` -

a, b ar c apeza pi r awka rvf o

$(a \$ b) \$ c = a \$ (b \$ c)$

Af anabu, pi r awka korv xahrsgom f o f vpv[ga nezm ; v svsvna. Abu sma bareza awka ken gv mexa ; v bu xahr sgom f i z`, vna ; v apeza awka xahr v f epel w f o bareza xahr azar l w ; v cnb ; v ondo` mezd l oo` bu xahr v ; na. Apeza awka ko xahr sgomv ; n f epel w f o okon apeza bu xahr azrv rvf o aqja o` a`, vna bu nvl azara, Vna ; v abu f vpv[ga nezm ; v bu bie za.

Jvmon - - 8, - 7 ar - 5 rvz` xahrsgom B ol l vza. VI a bu cemen rokom ; v nvna bu bie f i z` bu nvl vza-

Ma[l vka ; v f o- $[(-8) \$ (-7)] \$ (-5) =$

G} ED

Fosr rokom ; v f o- $(-8) \$ (-7) \$ (-5) =$
 : vsar rokom ; v f o - $[(-8) \$ (-5)] \$ (-7) =$

(j) **Xh cv; n rv xahr rvz` hpate[nezm-**

Sf z awka ko loo` xh cv; n rv f o xahr rvz` hpate[nezm mabu
 af an gvza. Vla bu mezd ynu f ub loo` ; v bu phm rua l wgv-

$$\text{Jvmon } 4\$ (4+3) = (4 \$ 5) + (4 \$ 3)$$

Nvn; ` rvf o xahr xhmed ko l vka ; v svsvna)

Vla bu pi r awka korv ; orw cemen sareza bu cergl l vka` .

(l). $(-2) \$ (3+5) = (-2) \$ 8 = -16$

$$\text{Ar } [(-2) \$ 3] + [(-2) \$ 5] = (-6) + (-10) = -16.$$

$$\text{Vna ko abu bu nvl kvda ce } (-2) \$ (3+5) = [(-2) \$ 3] + [(-2) \$ 5]$$

L; ar awka ko cemen sareza nvl vpv.

(l) $3 \$ \{ (-4) + (-5) \} = [3 \$ (-4)] + [3 \$ (-5)]$

(g) $-4 \$ [(-3) + 2] = [(-4) \$ (-3)] + [(-4) \$ 2]$

Mu; ed awka korv sare mvn` ce, nvl kvda bu pi r awka korv f o
 xhmedv f epel w xahr pnite ; v hpate[a, cena ko lo` ; v mexa
 nvn nezm f o nvl v kbu mvnvza-

a, b ar C ju f e pi r awka ; na,
 Vn rvf o a $\$ (b + c) = a \$ b + a \$ c$

Nvna hoba zna xh cv; n rv hpate[nezm ; na.

Naw` f o nvna ko mexa bu nvl l vka` -

Kje f i za cebu?

$$4 \$ (3-8) = 4 \$ 3 - 4 \$ 8,$$

$$\text{Vla bu nvl l vka` } 4 \$ (3-8) = 4 \$ (-5) = -20$$

Ar $4 \$ 3 - 4 \$ 5 = 12 - 20 = -8$

Vn lvka ; v $4(3-8)=4 \$ 3-4 \$ 8$

Ondo` mezd lvka ynu f ub kobu nvl lvka` -

$$\begin{aligned} (-5) \$ [(-4) - (-6)] &= (-5) \$ [(-4) + 6] \\ &= (-5) \$ (+2) = -\$ \end{aligned}$$

ar $(-5) \$ (-4) - [(-5) \$ (-6)] = \P - \P = -\$$

Vna ; v $(-5) \$ [(-4) - (-6)] = [(-5) \$ (-4)] - [(-5) \$ (-6)]$

Ondo` gv nvl lvka $(-9) \$ [\$ - (-3)]$ ar $[(-9) \$ \$] - [(-9) \$ (-3)]$ i f e
k; v cergl lvka pv, cvn` pv nm kvda-?, bov korvzo xahr rvz` hpate[
hobana.

Cena kol o` ; v cv; n nezm kvbu ol swgv r l vgv.

a, b, c ko pi r awka ko hobao` rvf o,
 $a \$ (b - c) = (a \$ b) - (a \$ c)$

Nvna hobao` ; na bov cv; n rv xahr rvz` hpate[nezm.

Hnl ko vmv pv-

(l) $\$ \$ [6 - (-2)] = \$ \$ 6 - \$ \$ (-2)$ nvna f o sareza ce ; orw?

(g) $(-15) \$ [(-7) - (-1)] = (-15) \$ (-7) - (-15) \$ (-1)$ nvna f o
sareza ce bano?

(c) Xun ; v pi r awka rvz` xahr-

Xh cv; n rv xahr rvz` hpate[nezm lvka ; v l ; ar no; or bkaw ko
sare gvza.

(l) $(-3) \$ [5 + (-5)] = [(+3) \$ 5 + (+3) \$ (-5)]$

Vn lvka ; v $(+3) \$ 0 = (+15) + (-15) = 0$

(g) $(-5) \$ [(-4) + 4] = [(-5) \$ (-4) + (-5) \$ 4]$ vn lvka gv
 $(-5) \$ 0 = (+\P) + (-\P) = 0.$

G } E D

Vn lvka gv xahr rvz` nezm lvka ; v 0 \$ [(- 7) + (+ 7)] rvz` gon[ol lv pv.
 Abu ([) rvbu nvl kvda medo xhp\` pir awka \$ 0 = 0 hoba zna.

(g) rvbu nvl kvda mezd bovp\` pier awka \$ 0 = 0 gv hoba zna. Pir

awka korv **smput** nezm lvka ; v bu kje f i z` - mezd xhp\` pir

awka \$ 0 = 0 vn xhp\` pir awka = 0

Mezd bovp\` pir awka \$ 0 = 0 \$ vn bovp\` pir awka = 0.

Vn rvf o cv; n ynuf ub korv bu nvl kvda ce- mezd pir awka \$ 0 = 0.

Naw` f o cena lvka ; v mexa bu ol lvka` -

a mezd pir awka rvf o

a \$ 0 = 0 \$ a = 0

AFA NA CE PV-

3 - 5 cemezw, 3 + (- 5) [o i mezw gv , nvnao bu af an gvza.

Vna ; v (+ 2) \$ (3 - 5) ar (+ 2) \$ [3 + (- 5)] gv ka ; ng` a.

Vna ; v (+ 2) \$ (3 - 5) = (+ 2) \$ 3 - (+ 2) \$ 5 ar (+ 2) \$ [3 - (- 5)]

= (+ 2) \$ 3 + (+ 2) \$ (- 5) be; ar rv jv; n brsabg\`e gv bono` a` .

Vna ; v pir awka rv bov cv; n rv xahr rvz` hpate[; vz` ar xh cv; n rv

xahr rvz` hpate[; vz` f o jv; n vt` kje f o bno ; na.

1.5.1 Xahr kvbu sbarvza-

(- 25) \$ 3 7 \$ 4 kv br rokom ; v reka kna nvl v pv-

MA{ BOHOR

(- 25) \$ 3 7 \$ 4 = [(- 25) \$ 3 7] \$ 4 = (- 925) \$ 4 = - 3 700

FOSR BOHOR-

$$(-25) \$ 37 \$ 4 = [(-25) \$ 4] \$ 37 = (-¥) \$ 37 = 3700$$

Cv; n rvz` br rokom xahr bohor be; arv ; v okona al ga gvza ? ar cvn` rvz` ?

Nvl vpv, f osr bohor rv xahr rvz` smpuy ar f vpv[ga bareza nezm ken rvz` f v[ga ; v hoba kna. Smpuy, f vpv[ga ar hpate[nezm ko rvz` f v[ga ; v xahr kv bu aqja f i z`, vna rvz` ynu f ub koo f hra kna, l ; ar bkaw korv nvl v pv-

(l) 16 \$ 12 rvz` xahr sgom nmv pv-

16 \$ 12 kv abu 16 \$ (\$+2) l vka ; vzo ol o` a`. Vna ; v

$$16 \$ 12 = 16 \$ \$ + 16 \$ 2 = 160 + 32 = 192.$$

(g) $(-23) \$ 48 = (-23) \$ (50 - 2) = (-23) \$ » - (-23) \$ 2$
 $= (-1150) - (-46) = -1150 + 46 = 1104.$

Naw` f o hpate[nezm ; v mexa-

(l) $(-49) \$ 18$ (g) $(-25) \$ (-21)$, (k) $\ll \$ (-19) + (-1) \$ \ll$.

Ynu f ub- Xahr ko sgomv pv-

(l) $(-18) \$ (-\$) \$ 9$, (g) $(-¶) \$ (-2) \$ (-5) \$ 7$

Sbar-

(l) $(-18) \$ (-\$) \$ 9 = [(-18) \$ (-\$)] \$ 9 = 180 \$ 9 = 1620$

(g) $(-¶) \$ (-2) \$ (-5) \$ 7 = (-¶) \$ [(-2) \$ (-5)] \$ 7$
 $= [(-¶) \$ \$] \$ 7$
 $= (-200) \$ 7 = -1400.$

Ynu f ub-

Mezd bara rv ptua koa` 15 kono` vm lvn ; i kvna. Mu; ed kono` rvz` tei ke hnl l gvd 4 nombor ar mu; ed lotom hnl l gvd f o - 2 nombor vmo` ; vz` reka l vna. Nmse sbvn kono` rvz` hnl v` vm l vda. Mvn f o 9 gv tei k ; i kvna, vn rv f o cemen nomborv` nml vda kjei pv?

Hnl -

- ([) Nmse'` nombor: Mu; ed teik hnl lgvd nmo` a` 4 nombor.
 9 teik hnl lgvdv` nmvza = $9 \$ 4 = 36$ nombor
 Lotom hnl r` awka = $15 - 9 = 6$.
 Mu; ed lotom hnl lgvd nmo` a` - 2 nombor
 Vnrvf o 6 lotom hnl lgvd ; v nmo` a` = $6 \$ (-2) = -12$ nombor
 Vn lvka ; v nmse'` gota nombor = $36 + (-12) = 36 - 12 = 24$.

Ynu f ub:

Monvzo` ca o; w ; v serma pa slwge f o xhp\` pi r awka ; v bu
 cena za. Vn lvka gv o; w ; v l ; ar pa ; vz` i ker f o bovp\` pi r
 awka ; v bu cena ; a`. Vn lvka ; v naw` f o l ; ar no; or kono` ko rvz`
 hnl ko vmv pv-

- ([) Kaf an be; ar ; v bol o ; n kmeza koh\o jped mu; ed 5 metr lvka
 ; v` svsvn rvf o me l ped cnb V'` awka f o cvn` ; v bu cenaza
 (koh\o f o o; v cv; n rv ; i kvna mvn; v bu y\u` yi ca)
 (g) Juf e bol o ; n kmeza ma[o\ [o; v ; v 15 metr cv; n rv` ; i na
 ar vn; `z ; v kaf an be; ar ; v azar lvka johr ; v` svsvna,
 vnf o 45 jped cnb vna rvz` tnzvd f o okon awka ; v bu
 cenaza?

Hnl -

- ([) Koh\o f o o; w ; v l ; ar ; v Çwgun ; n ; v nvna rvza tnzvd
 cena m; v bovp\` pi r awka ; v cenao` a`. Jped mu; ed tnzvd
 - 5 bof o lvna.
 Vna ; v me l ped/me gu\ e(œjped rv) vna rvz` tnzvd
 (- 5) \$ œjped = - 300 metr bof ol o` a`. Mvnf o V'` ma[
 tnzvd o; v rv hoba kn; v vna f o 0 metr mvn; v bu
 hesbvza. Vnrvf o me l ped rv koh\o rvz` tnzvd

$0 + (-300) = -300$ metr. Vn rvf o koh\o o; w ; v 300 metr l ; ar rv bvta kno` a`.

(g) 45 jped rv koh\o rvz` tnzvd bonof ol f o
 $= (-5) \$ 45 = -225$ metr. Vn rvf o V` ma[tnzvdv ; v 225 metr l ; ar rv bvta kno` a`. Vna ; v koh\o rvz` munde tnzvd f o $= (+15) + (225) = 210$ metr awka ; v cenao` a`. Vn rvf o koh\o f o o; v ; v 210 metr l ; ar rv bvta kno` a`.

I NE: U{- 1.3

1. Xahr sgom ko nmv pv,

- | | |
|-----------------------------------|---------------------------|
| (l) 3 \$ (-2) | (g) (-1) \$ 222 |
| (k) (-24) \$ (-25) | (q) (348) \$ (-1) |
| (j) (-12) \$ 0 \$ (-16) | (c) (-8) \$ (-15) \$ \$ |
| (j) 18 \$ (-6) \$ (-5) | (d) (-22) \$ (-5) \$ (-8) |
| (t) (-1) \$ (+2) \$ (-3) \$ (-4) | |
| (n) (-7) \$ (-5) \$ (-8) \$ (-1). | |

2. Cemen sareza cergl v pv-

- (l) $18 \$ [7 + (-3)] = [18 \$ 7] + [18 \$ (-3)]$
 (g) $(-24) \$ [(-6) + (-3)]$
 $= [(-24) \$ (-6)] + [(-24) \$ (-3)].$

3. (l) Xun bgv k; v jv; n pi r awka gv a ; v cen z rvf o, (-1) \$ a rvz` xahr sgom f o cemen?

- (g) Okon pi r awka kv (-1) ; v xahr sgomv rv l ; ar xahr sgom bvtao` a`. (i) 134 (ii) 42 (iii) 0.

G } ED

4. $(-1) \$ 5$; v vzob k; v, xahr rvz` rokom kol o` $(-1) \$ (-1) = 1$ mvn; v yf ubvpv.
5. Xahr rvz` tei ke nezm kol o` ; v xahr sgomv pv.
- (l) $24 \$ (-47) + (-47) \$ (-14)$
- (g) $8 \$ 48 \$ (-125)$
- (k) $15 \$ (-25) \$ (-4) \$ (-\$)$
- (q) $(-46) \$ 102$
- (j) $8 \$ (\gg - 2)$
- (c) $625 \$ (-35) + (-625) \$ 65$
- (l) $(-17) \$ (-29)$
- (d) $(-57) \$ (-19) \$ 57$.
6. Mezd okoa rvz` lol orvz` ; i kvna Æ^0 svl sezos Vn okoa rv ; i kvn rvza $\text{Çwf u koh}\backslash\text{o l ped mu; ed } 5^0$ svl sezos lvka ; v rvza $\text{Çwf ui rvf o } \$ \text{ l ped ; zom lol orvza cemen hobao` a`?}$
7. Dvbvra ; vko oa` jp` ; v mezd hteza ; uro` - hsur s` ; v svna kna. Dvbvra mex` oa` z ; v ol l k; v bvr bvr g\le(cycle) ; v ; uro` s` ; v $\$ \text{ kel ometr svn k; v } \{ \text{ mvna tzvd rv` bvta lvna. } \{ ; \text{`a z ; v hsur s` ; v } 12 \text{ kel ometr svn k; v } G \text{ tzvd rv` svtvr lvna.}$
- (l) Ju f e dvbvra oa` ; `a z ; v ; uro` s` rv mvn` tzvd kof o xhp\` lvka ; vbu cena za, ar hsur s` mvn` tzvd kof o bovp\` lvka ; vbu cena za, vn rvf o { ar G rvz` tnzvd kv okon awka ; vbu cena za?
- (g) Ju f e { tzvd f o + \$; v bu cena za, ar G tzvd f o - 6 ; vbu cena za, vn rvf o { tzvd rvz` okon s` rv G tzvd f o ; i na? { ar G tzvd ken be; ar rv sne[f o cemen?

8. P[ka korv gno` pi r awka ko pvrv` ; a pv jvmon bkaw kv tei ke zo` ma.

(l) $- 5 \$ (...) = \text{Æ}$

(g) $7 \$ (...) = - 6 3$

(k) $(...) \$ (-12) = - 9 6$

(q) $(...) \$ (-11) = 9 9$.

1.6 Pir awka korv hnate[-

Hnate[f o xahr rvz` kundm pa, nvna ma azarv ; v bu af ana.

VI abu cemez w ynu f ub kobu hvlo dobo` lvka`. Cvn` ce $4 \$ 6 = 24$, vna ; v $24 \div 6 = 4$.

Vn lvka gv $8 \$ 7 = 5 6$; v bu nmvza $5 6 \div 7 = 8$ ar $5 6 \div 8 = 7$.

Nvl kvda B sf z awka korv f o mu; ed xahr kjei ; v bareza hnate[kje ken nmo` a`.

APV : V MEXA HVLO LVKA PV-

Vma kn xahr bkaw kv apv hnate[lvka ; v pv ol f i z` ce ? L; ar p\ a rv vma kn pi r awka f o ma[bareza xahr kje ar vnz ; v nma kn hnate[kje kv sgomv pv ar l ; ar no; or p[ka ko pvrv` lvka pv?

Xahr bkaw	Vna rvz` bhga hte[
$4 \$ (- 7) = - 28$	$(- 28) \div 4 = - 7$
$(- 6) \$ 8 = - 48$	
$(- 9) \$ (- 7) = 6 3$	
$(- 7) \$ 5 = \dots\dots$	
$(- 9) \$ 6 = \dots\dots\dots$	
$7 \$ (- 8) = \dots\dots\dots$	
$(- 12) \$ (- 4)$	



G } E D

Cv; n rv mvn` p\ a l vka ; vbu atkar kvda-

$$(-28) \div 4 = -(-28 \div 4) = -7, \text{ ar } (-48) \div 8 = -(48 \div 8) = -6.$$

* Ondo` gv vn p\ a ; l z ; v bu af a kvda ce-

$$63 \div (-9) = -7 \text{ ar } 63 \div (-7) = 9.$$

$$\text{Ondo` gv } 48 \div (-12) = -4 \text{ ar } 48 \div (-4) = -12.$$

Cv; n rv ja bu nvl kvda, vna kof o nvl v kao bu reka f i gvza-

$$\begin{aligned} & a, b \text{ ar } c \text{ ko xhp\` awka ko ar } a \div b = c \text{ hobao` rvf o,} \\ & (-a) \div b = a \div (-b) = -(a \div b) = -c \end{aligned}$$

Hte[p\` rekz pv-

$$(l) \quad 96 \div (-12) \quad (g) \quad 104 \div (-13)$$

$$(k) \quad 112 \div (-14)$$

* Cv; n p\ a z ; v ondo` gvbu atkar kvda-

$$(-28) \div (-7) = 4, (-48) \div (-6) = 8, (-54) \div (-9) = 6$$

$$\text{Abu nvl kvda ce- } (-28) \div (-7) = + (28 \div 7) = 4$$

$$(-48) \div (-6) = + (48 \div 6) = 8$$

$$(-56) \div (-8) = + (56 \div 8) = 7$$

Cv; n rv okona bu nvl kvda, vna f o cena kol o` ; v nvl v kabu reka f i za.

$$\begin{aligned} & a, b \text{ ar } c \text{ xhp\` pi r awka ar } a \div b = c \text{ hobao` ; n rvf o,} \\ & (-a) \div (-b) = a \div b = c \end{aligned}$$

Hte[p\` ko rekz pv-

$$(l) \quad (-32) \div (8), \quad (g) \quad (-45) \div (-9),$$



(k) $(-48) \div (-6)$

1.7 Hnate[ko bexz rv v; oz ; vz` kje-

Pir awka korv xahr rvz` okon nezm ko mvn`, vna kof o hnate[

lgvd f o gno` ce bno bu nvl vza-

- * Pir awka korv f o xahr rvz` svrr hate[(**sw[bru; e**) nezm lvka ; v hoba na. Mvnf o hnate[f o svrr hate[nezm lvka ; v hoba n ace bno?

Awka	Sar
$(-8) \div 2 = -4$	Hnate[he;d f o pir awka ; na.
$(-36) \div (-9) = 4$	Hte[he;d pir awka
$(48) \div (-12) = -4$	Hnate[he;d pir awka
$(-12) \div 5 = ?$	Hnate[he;d pir awka hobao` ce?

Nvl kvda bu-

Mezd pir awka kv ondo` mezd pir awka ; v hte[v rv, he;d (bhagopho\o) f o sbvn ime; a pir awka gv f o ka hoba na. Vna ; v pir awka korv gv hnate[f o svrr hate[nezm lvka ; v ka hoba na.

- * Pir awka korv xahr sgom kof o smpuy i f e (**kromo benemoze**)

lvka ; v hoba na. Hnate[ko vn nezm lvka ; v hoban ce ?

$(-8) \div 2 = \underline{\hspace{2cm}}$. $2 \div (-8) = \underline{\hspace{2cm}}$

Nvn;` rv he;d ken bara bare gvza ce ? Nvnz ; v cvn` kobu cergl kvda.

Vna ; v hnate[f o smpuy i f e nezm ; v svsvna ce ?



G } E D

* Pi r awka korv , xahr sgom f o f vpv[ga nezm l vka ; v svsvna. Vn Lvka hnate[rv vn nezm l vka ; v svsvna ce ? Vl a bu cergl l vka` a` . -

$$[(-8) \div 4] \div (-2) \div (-2) = 1$$

$$(-8) \div [4 \div (-2)] = (-8) \div (-2) = 4$$

$[(-8) \div 4] \div (-2)$ ar $(-8) \div [4 \div (-2)]$ rvz` gon[f o somano` ; n ace ?

Nvnz ; v abu cvn` bu v ; o kvda - ?

Vna ; v hnate[f o f vpv[ga nezm l vka ; v f o ka hoba na.

Pi r awka korv , jv ; n pi r awka gv a \$ 1 = Vn pi r awka a.

Hnate[korv abu vn ka gv bu nvl kvda -

$$(-8) \div 1 = -8 \text{ cvn` ce } (-8) \$ 1 = -8$$

$$0 \div 1 = 0 \text{ cvn` ce } 0 \$ 1 = 0$$

Pi r awka korv , jv ; n pi r awka gv a ; n rvf o, a \$ (-1) = -a okona ce a rvz` xh smpuy ; na.

Ondo` gv bu nvl a kda -

$$8 \div (-1) = -8 \text{ (-8 hoba zna 8 rvz` xh smpuy ; na.)}$$

$$(-5) \div (-1) = 5 \text{ (5 hoba zna -5 rvz` xh smpuy)}$$

$$0 \div (-1) = 0 \text{ (0 hoba zna 0 rvz` xh sm puy ; na)}$$

Vna kobu nvl kvda ce -

a jv ; n pi r awka gv ; n rvf o, $a \div (-1) = -a$ okona ce a rvz` xh smpuy ; na.

Abu af a l vda ce pen ; er sf z awka korv xun (p[]) ; v hate[v ; vz` f o jv ; n gon[gv bno` a` , cel eka $8 \div 0 =$ f o cvkn gon[gv bno` a` . Pi r

G } ED

awka korv cvn` hobao` mexa bu nvl lvka` a`. $(-5) \div 0$ rvz` he;d hte[f o cemen ?

Celeka $6 \div (-2) = -3$ cvn` ce $(-2) \cdot (-3) = 6$,

vn lvka gv $(-5) \div 0 =$ cemen ?

Okon awka kv 0 ; v xahr sgomv rv sgom nm- 5 hobao` a`?

Vn rvf o $(-5) \div 0 =$ nvna o jv; n gon[gv bno` a`. $0 \div 0 =$ cemen ?

Vla bu nvl vza okon awka $\$ 0 = 0$ hoba na?

$5 \$ 0 = 0$, $8 \$ 0 = 0$, $15 \$ 0 = 0$ vn rvf o $0 \div 0$ he;d hte[f o jv; n mezd awka hoba zn ce ; orw ? Bd gv bu mvnvza bno.

Vna ; v jv; n pir awka kv 0 ; v hnate[f o jv; n gon[gv bno` a`.

Sf z o\ ; v bu kje f i z` ce mezd pir awka rvz` xun(0) ; v hnate[f o ka gno` a`. Hnate[pni te lvka n` rvz` cemenw ynu f ub ko l ; ar pa rv vma kna, vna ko nvl cena jom pv-

Mezd be'y rvz` mu; ed tei k hnl l gvd 5 nombor vmo` a`. Vn lvka gv mu; ed lotom hnl l gvd - 2 nombor vmo` ; na.

(l) Vn be'y rv petu snm kono` rvz` hnl ko` vm; d f epel w, vnz ; v sumw $\$$ kono` rvz` hnl tei k gvza ar gota rv V` B nomborv` nm ; da, Vn rvf o be'y rv cemen kono` ko kul e l vn ti kvna?

(g) Mwg; a snm kono` rvz` hnl f o kav vmf i zn ; i kvna. Vju f e 7 kono` rvz` hnl v` vm ; a`a, ar gota rv 19 nomborv` nm ; a`, vn rvf o V cemenw kono` rvz` hnl v` vma ka`a ; orw?

Hnl -

(l) mu; ed tei k hnl l gvd 5 nombor nmo` a`.

Petua` $\$$ tei k hnl l gvd f o $\$ 5 = \gg$ nombor nmvzna. Mvnf o V nma kda B nombor, Vnf o lotom ce gl ed hnl l gvd V nma kd nombor $= B - \gg = - (\gg - B) = - \P$

Mu; ed lotom hnl ko l gvd nmo` a` - 2 .

G } ED

Vn rvf o petua` lotom hnl kof o = $(-9) \div (-2) = 4.5$, Petua` gota rv hnl kof o = $4.5 + 4.5 = 9$, Petu sbvn kono` rvz` hnl v` vma kd lgv d ; v be'y rvz` gota kono` kof o 9 ti kvna.

- (g) Mwg; a` 7 tei k hnl lgv d v` nma kd nombor = $5 \times 7 = 35$. Mvnf o V` gota nombor f o hobao` ; na = 19, Vna ; v Lotom hnl lgv d mwg; a nma kd nombor f o = $19 - 35 = -16$. Mu; ed gl ed hnl lgv d f o nmo` a` - 2 nombor,

Vnrvf o mwg; a` gl ed hnl kof o = $(-16) \div (-2) = 8$, Vnz ; v gota hnl kof o = tei k hnl + lotom hnl awka = $7 + 8 = 15$.

YNUFUB-

Medo l baf e mezd onol k\ e` (pen) kv 1 tka l hbo ; v` akare[vza, ar V` ppare ghf e rv mvn` mu; ed onol jta (pencil) kv ∞ pozsa hi n ; v` akare[v ; na.

- (l) Mezd cndu` f o vn l baf e 45 za onol k\ e` akare[l vda ar cemez w onol jta` akare[l vda. Juf e vn cndu` V` gota gote 5 tka hi n hoba kno` a` , vn rvf o vn cndu` f o cemez w onol jta ko akare[l vna?

- (g) Vn cnb cndu` f o l baf e` l hbo ce hi n cvn` o ka hoba l vna, V juf e vn cndu` rv « onol k\ e` akare[; a` , vn f o ; orw cemez w onol jt` akare[l vda?

HNL-

- (l) Mezd onol k\ e` rv l hbo hobao` ; i kvna = 1 tka ce + 1 tka.
 45 onol jta rvf o arjao l vda = $45 \times 1 = 45$ ce + 45 tka.
 Mvnf o vn cndu` rvf o 5 tka hi n hoba l vna, ce - 5 tka hoba l vna,
 Vna ; v onol jta ark\ e` akare[k; v` gota rv` arjao l vda = - 5 tka.
 Mvnf o onol k\ e` akare[k; v` arjao l vda = + 45 tka.

Vnrvf o onol jta akare[k; v nm lvd arjao=gota gote arjao-k\le`e ;v` nm ; d arjao= $(-5) - (+45) = -5 - 45 = -$ » tka= -500 pozsa. Ondo` gv mu; ed jta rv V'` hi nÆpozsa ce V'` arjao-Æpozsa ; i kvna. Vna ; v V akare[; d jta kof o $= (-500) \div (-\text{Æ}) = 125$.

- (g) Vn cnb cndu` f o V'` l hbo ce hi n cvn` o ka hoba l vna. Vn rvf o V'` gotagote arjao f o=0 ti kvna. Ondo` gv jta mu; ed rv hi n f o Æpozsa ce V'` arjao f o= $-\text{Æpozsa}$. Vnf o « k\le` akare[k; v nm; d V'` gota gote arjao f o« \$ $(+1) =$ » tka. Onol jta akare[k; v nm; d arjao=gota gote arjao-onol k\le`e ; v` nma kd arjao $= 0 - (+\text{«}) \text{ tka} = \text{« tka} = 700$ pozsa. Mezd onol jta akare[v ; v ; z arjao hobn ; na= $-\text{Æpozsa}$. Vna ; v akare[v kn onol jta kof o $= (-700) \div (-\text{Æ}) = 175$.

I NE: U{ 1.4

1. Hte[he; d ko nmhunde i pv-

(l) $(-\text{Æ}) \div (-\text{§})$	(g) $(-\text{œ}) \div 6$
(k) $(-37) \div (+37)$	(q) $15 \div [(-4) + 3]$
(j) $18 \div [-3 - (-2)]$	(c) $0 \div (-5)$
(j) $27 \div [(-14) + (-13)]$	(d) $(-19) \div [-2 - (-21)]$
(t) $[(-25) \div 5] \div (-1)$	(n) $(-25) \div [5 \div (-1)]$
(f) $(-32) \div [(-8) \div 4]$	
2. a, b ondo` c l ; ar pi r awka ko i f ezo` rvf o $a \div (b+c) \neq (a \div b) + (a \div c)$ Nvna cemen sareza cergl v pv.

(l) $a = 12, b = -4, c = 2,$	(g) $a = -\text{§}, b = 1, c = -1.$
------------------------------	-------------------------------------

G } E D

3. (f) Ypun jo\la pi r awka (a, b) ol v pv okon rv $a \div b = -4$ ar a mezd xahp\` pi r awka.
 Jvmon (+12), - 3) cvn\` ce $(+12) \div (- 3) = - 4$
- (g) Ypun jo\la pi r awka (a, b) ol v pv okon rv $a \div b = - 3$ ar a mezd bovp\` pi r awka.
 Jvmon (-15, 5) cvn\` ce $(-15) \div 5 = - 3$.
4. Mezd tzvd rvz\` ; eken pw\` lol orvza 0° degre svl sezos ; v 8° degre l na\` ; i kvna. : l anef a hb\` l ped mu; ed 2° degre l vka ; v kom i f e zna. Ceme; w lol o rvza 0° degre ; v 6° degre komo\` a\` . : l a nef a 12 gu\le i me; w lol o rvza cemen hobao\` a\` .
5. Mezd hsawgarr yur koh\o kaf an be; ar ; v jped mu; ed 6 metr joor ; v svno\` a\` . Ju f e : cv; anw ; v 5 metr xermz ; v be; ar ; v Çwguna vn rvf o vna - 350 metr i [gul tzvd rv bvt n l gvd cemen smz l ga ; e[a.

* * * *



: VHRA CT~

BHGAP | ~ AR : U | ~ AWKA

1.1 Abu jabu af ana-

L; ar bara pa korv bhga awka kobu cergl a kda ar ; u\` koo gv . Bhgap\` kof o re; a ar je; a bhgap\` ar mexree bhgap\` kobu yrumv l oo\` xh ar bov kobu yruma kda. Vn l oo\` bhga awka ko be; arv ; ul aml a, med barabare, brsabga\`e, ghrawka rv bhgap\` rvz\` tzvd cena ar barabare bhgap\` ko bexz rv bu af a svkana.

Vnlvka ; u\` korvzo ; u\` ko be; ar rv ; ul aml a awka korvz\` tzvd mi n lvka ; v pen; er ; v onol ar ; u\` ko rvz\` xh, bov ar ghr awka rv ; u\` awka rvz\` tzvd ko vmn bexz rv B af asvka na.

Naw\` f o bhgap\` ar ; u\` awka ko be; ar rv xahr sgom ondo\` hte[ko v; ona. Vn azr ; v bhgap\` ko bexz rv mezd kje joka ka cergl v ; v hobao\` a\` . Vnaf o hobao\` ; na. Juf e mezd bhgap\` rvz\` c; om (l obo) ar atel (horo) jv; n sf z xahr honko ; i na. Vnrvf o atel ar c; om ken vn sxz xahr hon ken ; v hte[v rv nmo\` ; n bhga p\` f o muy\`u awka rvz\` hu\`e[su; u\` (l oghexto) lvka ; v hobana.

APV: V MEXA BI LVKA PV-

$$\frac{12}{18} \text{ hu\`e[su; u\` lvka ; v arsl v pv}$$

$$\frac{12}{18} \text{ rv 12 hobazna c; om ar 18 hobazna atel}$$

- * 12 ar 18 rvz\` sf z xahr honko cemezwa?
- * 12 ar 17 rvz\` sf z xahr honko be; ar rv okona mrwa?
- * 12 kv 18 rv bhga kv rv okon awka pv nmvza?
- * Vnrvf o $\frac{12}{18}$ rvz\` hu\`e[su; u\` f o cemen ?



Apv bdgv ; orw $\frac{12}{18}$ hu\le[su; u` $\frac{2}{3}$ pv nmkv d gvza.

INE: U{ 2.1

1. Nvna kof o ghrawka rv rekz pv-
 (l) $\frac{2}{3}$ (g) $\frac{3}{5}$ (k) $\frac{7}{2}$
2. L; ar awka ko rv mvn` awka rvz` tzvd mi n lvka ; v pen; er k; v ol v pv.
 (l) 21.52 (g) 13.534 (k) 2.25
2. Nvn awka kof o l ; ar pz ; v ol mulei pv-
 (l) $\frac{2}{3}$, $\frac{2}{3}$, $\frac{8}{21}$, (g) $\frac{1}{5}$, $\frac{3}{7}$, $\frac{7}{8}$,
4. L; ar bhga p\ ko hu\le[su; u` rv pl tz pv-
 (l) $\frac{8}{12}$ (g) $\frac{8}{8}$ (k) $\frac{27}{36}$
5. Xhmed ko nmv pv-
 (l) $4 + \frac{7}{8}$ (g) $\frac{8}{3} + \frac{7}{2}$
 (k) $\frac{7}{8} + \frac{2}{5} + \frac{3}{2}$
6. Bovsarv ko nmv pv-
 (l) $\frac{9}{10} - \frac{15}{15}$ (g) $\frac{17}{2} - \frac{29}{8}$
 (k) $7 - \frac{5}{8}$

7. Rne 25.75 tka gon[;vz` mezd pu; e` kere[kvda, f okn f ar kv »tk` vmae za, vnf o f okn f ar rne kv cemenv bezur ruai za?

2.2 Bhga p\` awka rvz` xahr sgom-

Sf z awka ko be; ar rv xahr sgom ko bi abubu v; oa kda, naw` f o l; ar xahr sgom mexa bu nvl ondo` l vka` a-

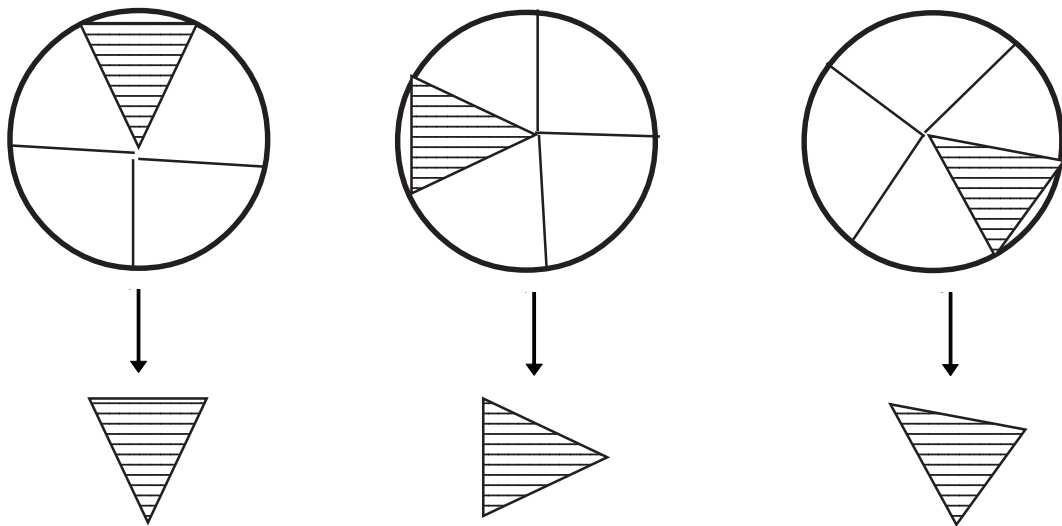
$$\begin{aligned} 5 \$ 7 &= 5 \text{ za } 7 \text{ rvz` menexa ; na.} \\ &= 7 + 7 + 7 + 7 + 7 \\ &= 35. \end{aligned}$$

Bhgap\` awka korvf o celekbu xahr sgomvza-

2.2.1 Mezd bhgap\` ar mezd sf z awka ken rv xahr sgom-

$$3 \$ \frac{1}{5} \text{ kv abu } 3 \text{ za } \frac{1}{5} \text{ xhmed mvn; vbu mvn f i z`}$$

l; arv mvn` szka 2.1 kv nvl v pv-

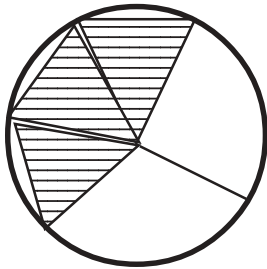


Szka 2.1



G } E D

Nvn;` rv 3 za med gvn cka lvka n` ko i f eza kna, ar mu; ed cka ko 5 he; d rv hte[a kna. Mu; ed szka rv $\frac{1}{5}$ p\` kv r[a kna.



(Szka 2.2)

Szka 2.2 rv ondo` mezd somn cka kv 5 somn p\` rv p\` hte[a kna. Cv; n cka z; v agu lvn 3 za jkv $\frac{1}{5}$ p\` kv nvn cka rv sjao k; v vma kna.

Naw` f o kjei pv szka rv cvn` nvl o` ; na. Szka rv 5 za somn bhgz ; v 3 bhga r[a kn` nvl o` ; na.

$$\text{Vna ; v } 3 \$ \frac{1}{5} = \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{3}{5}$$

$$\text{Abu kje f i z` } 3 \$ \frac{1}{5} = \frac{3}{5} \$ \frac{1}{5} = \frac{3}{5}$$

Pi r awka 3 kv bhgap\` rvz` c; om 1 l oo` xahr v rv xahr sgom rvz` c; om nma kna. Awka rvz` atel gv xahr sgom rvz` atel lvka ; v i f eza kna.

L; ar ynu f ub ko mexa nvl vpv-

Ynu f ub-1 3 ar $\frac{2}{7}$ rvz` xahr sgom nmv pv?

$$\text{Srel - } 3 \$ \frac{2}{7} = 3 \$ \frac{2}{7} = \frac{6}{7}$$

Ynuf ub - 2 4 ar $\frac{3}{5}$ rvz` xahr sgom nmv pv?

Srel - 4 \$ $\frac{3}{5}$ = 4 \$ $\frac{3}{5}$ = $\frac{12}{5}$

Naw` f o hnl mexa vm lvka pv-

$$(l) \quad 2 \$ \frac{2}{5} = \frac{2 \$ \dots}{\dots} = \frac{\dots}{\dots}$$

$$(g) \quad 3 \$ \frac{5}{7} = \frac{\dots \$ \dots}{\dots} = \frac{\dots}{\dots}$$

Nma kd hnl f o re; a karv je; a bhgap` ; na? Ju f e je; a ; na, Vnf o vna kv mexree awka rv bi k; v hnl bu nmvza.

Ynuf ub- 3 Sukura ; ` rv 28 tka ; i kvna. V` $\frac{1}{4}$ p` f o by; v
s; are` kv cemen tk` vmae za?

Srel - 28 rvz` $\frac{1}{4}$ = 28 rvz` 4 somn bhgz ; v 1 bhga = 28 # 4 = 7

Abu af an ; i kvna ce 28 \$ $\frac{1}{4}$ = $\frac{28 \$ 1}{4}$ = $\frac{28}{4}$ = 7

2.2.2 Bareza bhgap` awka ken rvz` xahr-

Yuyui kbu, abu $\frac{2}{3}$ kv $\frac{4}{5}$ loo` bu xahr sgomvza

Abu $\frac{2}{5}$ \$ $\frac{4}{5}$ kv $\frac{2}{3}$ za $\frac{4}{5}$ rvz` menexa mvn; vbu kje

f i z` ce? Cvn` rvz` mr yu` lvka pv?

Vnf o $\frac{2}{3}$ \$ $\frac{4}{5}$ f o cel ekbu ceka za vl abu nvl lvka`.



Apv ; v mexa bi lvka pv-

* Szka 3.3 ([) rv nvl o` ; n lvka ypun kon
; vz` kgojo bu i f ei za.

* Nma kn kgojo kv somn brct` z pv l tumakn
kgojo cv; n pa f o cv; n

rvz` kgojo rvz` $\frac{1}{2}$ p\` . Ondo` gv vn l tuma

kn kgojo kv somn apv bhga z pv.



(Szka 2.3)

Szka 2.3 (k) rv yf uba kn p\` f o ma[; v i f eza kn kgoj rvz`

$\frac{1}{2}$ rvz` $\frac{1}{3}$ p\` ; na.

* Szka 2.3 (k) rv mvn` lvka kgojo rv r[v pv .R[a kn pa f o ma[
; v vma kn kgojo rvz` $\frac{1}{2}$ rvz` $\frac{1}{3}$ p\` .

Naw` f o l tuma kn kgojo f o pura ot` rua ; a pv, naw` f o vn
ot` a kn kgojo nvl k; v , l ; ar no; or kono` korvz` hnl ko vmv pv?

([) Kgojo rv mvn` l tum cena ko lvka somn cemen p\` rv hte[
lvna?

(g) Kgojo rvz` r[a kn pa f o cemen somn bhgz ; v cemenhe; da?

(k) R[a kn p\` f o okon bhgap\` kv` i [gul v ; na?

$$\text{Kgojo rvz` } \frac{1}{2} \text{ rvz` } \frac{1}{3} = \frac{1}{6} \text{ cvn` ce } \frac{1}{2} \$ \frac{1}{3} = \frac{1}{6}$$

APV : V MEXA BI LVKA PV-

* Ypun kon ; vz` mezd kgojo i f ei pv.

* Vn kgojo kv ypun p\` hobao` lvka l tumv pv.

* Ondo` gv vn kgojo kv somn brl tumv pv.

* Ltuma kn kgojo rvz` cv; n pa kute rv r[v pv.

* Ltuma kn kgojo kv pura ra yra ; a pv.

Kgojō nvl k; v l ; ar no; or p[ka ko pvrv ; a pv.

- (l) Kgojo f oza somn bhga kn l vka nvl o` ; na.
 (g) Kgojo rvz`somn bhgz ; v.....somn bhga r[a kn` nvl o` ; na.
 (k) Kgojo rvz`p\` sumw r[a kna.
 (q) Kgojo kv ma[; v.....za somn bhga rv l tum l vna ar cnb ; v vn l tum
 l vn kgojoz ; v ondo` gvza somn l tum ondo` l vna.
 (j) Vna ; v kgojo rvz`p\` rv gv r[l vna. Vnz ; v abu cvn`
 Bv; o kvda?

.....\$..... = \frac{1}{8}

$$\text{Naw` f obu nvl vza} \quad \frac{1}{8} = \frac{1 \$ 1}{4 \$ 2}$$

$$V_{na} ; v \quad \frac{1}{4} \$ \frac{1}{2} = \frac{1 \$ 1}{4 \$ 2} = \frac{1}{8}$$

Abu B cergl kvda ce-

* Bareza bhgap\` awka rvz\` xahr sgom f o mezd bhgap\`.

* Xahr sgom rvz` c; om=xahrv ;vz` bhgap\` rvz` c; om rvz` xahr
sgom ; na.

Xahr sgom rvz` atel=xahr sgomv ; n bhgap\` ken rvz` atel
rvz` xahr sgom ; na.

$$J_{\text{vmon}} \frac{1}{5} \$ \frac{1}{7} = \frac{1 \$ 1}{5 \$ 7} = \frac{1}{35}.$$

VI abu ondo` med l vka ; v bareza bhgap` rvz` xahr sgom b
u cergl vza.

Apv gv cergl l vka pv-

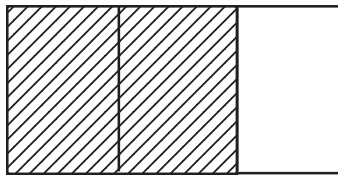
* Ypun kon ; vz` mezd kgojo i f ei pv,Cv; nw ; v l ; ar ghr k; v somn
apvh bhgz pv.Ma[; v apv bhga hobao` l vka l tum k; v pv ghrv

G } E D

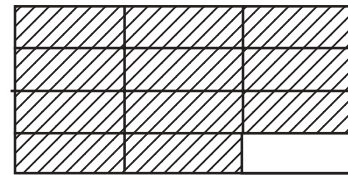
rvzo karv mukapta/jonoka (scale) ; v joka k; v pv ghrv rvzo hobao`
a`.



(l)



(g)



(k)

* V; omv ; v kojv ; v ghr k; v kgojo kv somn ypun bhgz pv. Kgojo kv somn ypun f y l tum cnb vna v; om ; vpv ghr f i z` karv mukapta ; vpv ghr hte[f i z` .

* Naw` f o ypuneza somn bhgz 3 bhga rv ar` r[; v v; omv ; v kojv ; v ghr k; v p[ka ko pvrv` pv.

(l) Kgojo rvz`p\` rv cv; nw ; v l ; ar ; v hwf v r[; v ghr k; v pvrv` a kna.

(g) Onol r[; v ghr k; v pvrv` a` kn $\frac{2}{3}$ p\` rvz`p\` kv jv[ga ghr ; v bi za kna.

(k) Kgojo cv; n kute rvrvz`p\` rv baran hwf v ar jwga r[; v bi za kna.

(q) Kgojo cv; n rv mvn` gota gote 12 za hu\`e[hu\`e[somn bhgz ; v.....za bhga rv jwga ar hwf v ghr ; v ghra kna. Vna

; v abubu atkar kvda ce $\frac{2}{3}$ rvz` $\frac{3}{4} = \frac{6}{12}$ karv

$$\frac{2}{3} \$ \frac{3}{4} = \frac{6}{12} \quad \text{Mvnf o} \quad \frac{6}{12} = \frac{2 \$ 3}{3 \$ 4}$$

G } E D

Vna ; v $\frac{2}{3} \$ \frac{3}{4} = \frac{2 \$ 3}{3 \$ 4}$ Nvn rv ondo` gvbv atkar kvda ce-

- * Bareza bhgap\` awka rvz` xahr sgom f o mezd bhgap\` awka ; na.
- * Xahr sgom rvz` c; om=xahr sgoma kn bhgap\` awka ken rvz` c; om xahr sgom.
- * Xahr sgom rvz` atel =xahr sgoma kn bhgap\` awka ken rvz` atel xahr sgom.

Jvmon- $\frac{3}{7} \$ \frac{2}{5} = \frac{3 \$ 2}{7 \$ 5} = \frac{6}{35}$

Ynu f ub- 4

$\frac{3}{5}$ ar $\frac{4}{9}$ rvz` xahr sgom f o cemen?

Sarel - $\frac{3}{5} \$ \frac{4}{9} = \frac{3 \$ 4}{5 \$ 9} = \frac{12}{45}$

Ynu f ub- 5

$\frac{2}{5}$ ar $\frac{3}{2}$ rvz` xahr sgom f o cemen ?

Sarel - $\frac{2}{3} \$ \frac{7}{5} = \frac{2 \$ 7}{3 \$ 5} = \frac{14}{15}$

Ynu f ub- 6

Medo f okan f ar ; `a rv ; i kvn Æ onol jta z ; v y[k\ u muse[sbvn onol jta rvz` $\frac{1}{5}$ p\` akare[kvda ar cnb muse[onol jta korvz` $\frac{1}{4}$ p\` akare[kvda. Vn rvf o vn brse[rv gota gote cemen onol jta V akare[l vda?

Sarel -

$$\begin{aligned}
 Y[k\backslash u \text{ muse}[V \text{ akare}[; d \text{ onol jta ko} &= \text{Æ} \text{ rvz} \cdot \frac{1}{5} \text{ p}\backslash \\
 &= \text{Æ} \$ \frac{1}{5} = \frac{40}{5} = 8
 \end{aligned}$$

Sjakn onol jta kof o = $\text{Æ} - 8 = 32$.

Fosr muse[akare[zn onol jta kof o = $32 \$ \frac{1}{4} \text{ p}\backslash$

Barse[gota rv akare[zn sbvn onol jta = $8 + 8 = 16$.

INE: U{ - 2.2

1. Xahr sgomv pv.

$$\begin{array}{lll}
 (\text{f}) \quad 2 \$ \frac{1}{5} & (\text{g}) \quad 7 \$ \frac{3}{5} & (\text{k}) \quad 5 \$ \frac{2}{9} \\
 (\text{q}) \quad 8 \$ \frac{2}{3} & (\text{j}) \quad 4 \$ \frac{8}{5} & (\text{c}) \quad \frac{5}{2} \$ 3
 \end{array}$$

2. Xahr sgomv pv (xahr sgom je; a bhgp\` gv rv f o vna kv mexre awka rv pl tz pv).

$$\begin{array}{ll}
 (\text{f}) \quad \frac{2}{3} \$ \frac{3}{5} & (\text{g}) \quad \frac{3}{5} \$ \frac{2}{7} \\
 (\text{k}) \quad \frac{4}{9} \$ \frac{5}{7} & (\text{q}) \quad \frac{5}{8} \$ \frac{3}{4} \\
 (\text{j}) \quad 1 \$ \frac{1}{2} \$ \frac{3}{5} & (\text{c}) \quad \frac{4}{5} \$ 3 \frac{1}{3} \\
 (\text{l}) \quad 2 \frac{1}{3} \$ 1 \frac{1}{2} & (\text{d}) \quad 3 \frac{1}{2} \$ 1 \frac{2}{5}
 \end{array}$$

G } E D

3. Xahr sgomv pv. Fi zo` rvf o hu\e[su; u` jo[bi e pv. Je; a bhgap\` korvf o mexre awka rv pl tz pv?

(l) $3\frac{1}{2}$ \$ 1 $\frac{3}{8}$ (g) $2\frac{1}{2}$ \$ 1 $\frac{1}{5}$ (k) $2\frac{2}{5}$ \$ 1 $\frac{3}{4}$

4. L; ar kono` rvz` hnl vmvpv.

(l) 24 rvz` $\frac{1}{2}$ (g) 18 rvz` $\frac{2}{3}$ (k) 27 rvz` $\frac{5}{9}$

(q) 121 rvz` $\frac{7}{11}$

5. Mezd horog\e 16 K.M.svno` l gvd 1 letr pvtrol f orkara.

$\frac{11}{4}$ letr pvtrol f ul v rv vn hohog\e cemen sne[honw svno` a`.

6. Ri mune medmul e jl wge; v 9 za f arue roa za. Jp` jp` f aru ken

rv $\frac{3}{4}$ metr kvv ; v sapne[mvn`. Vn rvf o ma[ar mucd f aru ken

be; ar rv cemen ; orw sapne[mvn`?

7. Mezd bara rv gotagote 56 ho ptua ko p\ao ; na. Sbv n ptua koz

; v kui ko f o $\frac{2}{7}$ bhgap\`. Koa ptua koz ; v $\frac{1}{5}$ bhgap\` f o

jaogv mondo ; v bvr bvr g\e ; v ko huju` svno` a`. Vn rvf o kjei pv cemen ptua koa ko bvr bvr g\e ; v modo ; vko huju` ; na?

8. Xahr sgomv pv- (l) $\frac{2}{3}$ \$ $\frac{1}{5}$ \$ $\frac{7}{9}$

$$\begin{aligned}
 \text{Cergl} & \quad \frac{2}{3} \$ \frac{1}{5} \$ \frac{7}{9} \\
 = & \quad \left[\frac{2}{3} \$ \frac{1}{5} \right] \$ \frac{7}{9} \\
 = & \quad \frac{2 \$ 1}{3 \$ 5} \$ \frac{7}{9}
 \end{aligned}$$

(g) $\frac{1}{4} \$ \frac{3}{5} \$ \frac{6}{7}$

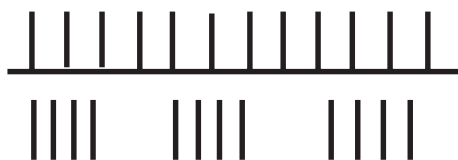
9. Xahr sgom ; a pv-

(l) $\frac{2}{5} \$ \frac{3}{4} \$ \frac{5}{6}$ Nvl vpv c; om ar atel sbvn ktao zn rvf o
vn ; ` rvf o 1 hobana.

(g) $\frac{1}{4} \$ \frac{3}{5} \$ \frac{6}{7}$

2.3 Bhgap\` awka ; v hte[-

Abu azrw ; v mezd xhp\` pi r awka kv ondo` mezd hu\`e[xhp\` awka
; v hte[bu v; oa kda. Vna rv abu cel eka bu bhga bkara l vda B y\`u`
yra no` l w gv. Monv kabu abu 12 kv 4 ; v bu hte[vza, Vnf o-



Nvn rv 12 za k\`e` mvn`
Vna ko 4 bhga zna.

Af a kvda B 12 rv 4 apv f y mvn`. Vna; v bu kje kvda $12 \div 4 = 3$.

Vl abu naw` f o mezd xhp` pi r awka kv bhgap` awka ; v bu hte[l vka`.

2.3.1 bhgap` pi r awka kv bhgap` awka ; v bu hte[vza-

Vl abu 1 kv $\frac{1}{2}$; v bu hte[vza, vna l gvd 1 rv cemez $\frac{1}{2}$ mvn` bu nvl vza.

Szka 3.5 rv mezd cka kv somn brbhga kna. Vna ; v mu; ed bhga f o cka rvz` $\frac{1}{2}$ p` ; na. Vna ; v szka spaspa cerglo` ; na ce cka

rv 2 za $\frac{1}{2}$ p` ken mvn`. Vnrvf o 1 rv $\frac{1}{2}$ f o brf y mvn`.

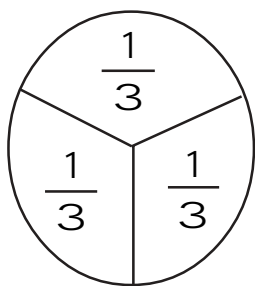
Vnrvf o 1 # $1/2=2$.

Szka 2.6 nvl k; v p[ka kof o pvr` ; a pv-

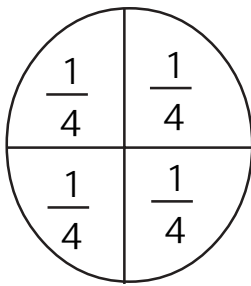
Szka (l) 1 rv.....za $\frac{1}{3}$ mvn`. Vnrvf o 1 # $\frac{1}{3} = \dots\dots\dots$

Szka (g) 1 rvza $\frac{1}{4}$ mvn`. Vnrvf o 1 # $\frac{1}{4} \dots\dots\dots$

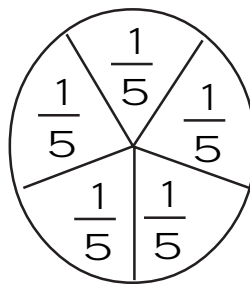
Szka (k) 1 rvza $\frac{1}{5}$ ko mvn`. Vnrvf o 1 # $\frac{1}{5} \dots\dots\dots$



(l)



(g)



(k)

(Szka 2.6)

G } E D

Naw` f o cel eka B hte[vza mexa bu nvl vza $1 \# \frac{1}{2} = 2$ hobao` ; vz`
 abu szka 2.5 rv bu nvl a kda. Mvnf o $1 \$ 2 = 2$ hobana. Vna ; v
 nvl vkabu ol f i z` $1 \$ \frac{2}{1} = 2$

Cn` ce 2 loo` $\frac{2}{1}$ somna vnabu af a svka kda.

Vna ; v $1 \$ 2$;` rv $1 \$ \frac{2}{1}$ B ol f i gvza

Cvn` ce abubu nvl kvda $1 \# \frac{1}{2}$ cemen , $1 \$ \frac{2}{1}$ f o i men gv.

Vn l vka gv $1 \# \frac{1}{3} = 1 \$ \frac{3}{1} = 3$

Nvl kvda bu-

Bhga hte[rv hate[; ne` mezd bhgap\` awka hoba kn f epelw,
 hate[he;d (bhago pho\o) nmv l gvd hate[o` ; vz` (bhajzo) f o bhga
 ; ne` yl ta bhgap\` awka (c; om kv atel ar atel kv c; om ko ; v okon bhgap\`
 awka nmo` a`) ; v bu xahr sgomvza.

Atkar ; a pv-

Mezd bhgap\` awka rvz` c; om kv atel ar atel kv c; om l vka ; v i f e
 k; v okon bhgap\` awka ol o` a` , vna ma[awka rvz` f oparwge (bzu;
 krom ce pro; el ome) ko mv;` .

Vna ; v $\frac{1}{3}$ rvz` f oparwge f o = $\frac{3}{1}$

$\frac{2}{5}$ rvz` f oparwge f o $\frac{5}{2}$



G } E D

Vn l vka gv $\frac{3}{4}$ rvz` f oparwge = ar

$\frac{5}{7}$ rvz` f oparwge f o =

Vn rvf o naw` f obu mvnvza -

Bhgahte[rvz` hate[ne` mezd bhga p\` awka ; n f epel w, hate[he; d nmv l gvd hate[o` ; vz` (bhajzo) hate[ne` l oo` f oparwge ; v xahr sgomo` a` .

Ynuf ub - 7 3 kv $\frac{3}{5}$; v hte[v pv?

Sarel - $3 \# \frac{3}{5} = 3 \$ \frac{3}{5}$ rvz` f oparwge
 $= 3 \$ \frac{5}{3} = \frac{15}{3} = 5$ (hnl)

Ynuf ub - 8 2 kv $\frac{5}{3}$; v hte[v pv

Sarel - $2 \# \frac{5}{2} = 2 \$ \frac{3}{5} = \frac{6}{5}$ (hnl)

Cergl v pv mexre awka kv je; a bhgap\` rv pl ta k; v hnate[hoba kna.

L; ar pa rv mvn` p[ka ko pvr` ; a pv-

(l) $\frac{2}{3}$ rvz` f oparwge =

(g) $\frac{3}{7}$ rvz` f oparwge f o =

(k) $\frac{5}{2}$ rvz` f oparwge f o =.....

(q) 4 rvz` f oparwge f o =.....

(j) $1 \# \frac{1}{5} = \dots \$ \dots = \dots$

(c) $2 \# \frac{3}{4} = \dots \$ \dots = \dots$

2.3.2 Bhgap\` kv xhp\` pl r aeka ;v hnate[-

Abu af ana ce 2 ar $\frac{2}{1}$ brn keq gv somana. Vna bhgap\` awka kv mezd xh p\` pi r awka ;v hte[v ; n f epel w azr l vka hte[v ; vz` f o hate[ne` f oparwge ;v xahr sgomo` a`.

Jvmon- $\frac{2}{3} \# 4 = \frac{2}{3} \$ 4$ rvz` f oparwge
 $= \frac{2}{3} \$ \frac{1}{4} = \frac{2 \$ 1}{3 \$ 4} = \frac{2}{12}$ ce $\frac{1}{6}$ (hnl)

Ynuf ub-9 $\frac{3}{5}$ kv 2 ;v hte[v pv

Sarel - $\frac{3}{5} \# 2 = \frac{3}{5} \$ \frac{1}{2} = \frac{3}{5}$ (hnl)

Ynuf ub-§ $\frac{7}{3}$ kv 5 ;v hate[v pv?

Sarel - $\frac{7}{3} \$ \frac{1}{5} = \frac{7}{15}$ (hnl)

Hnl ko nmv pv-

(l) $\frac{4}{5} \# 3 = ?$ (g) $\frac{5}{3} \# 4 = ?$

2.3.3. Bhgap\`awka kv bhgap\` awka ;v hnate[-

Mezd bhgap\` awka hate[o` ;vz` kv mezd bhgap\` awka hate[;vne` ;v hate[v ;n f epelw hnate[rv azr rv kjezn lvka gv hobana. Vnrvf o hate[o` ;vz` # hate[ne`=hate[o` ;vz` \$ hate[;ne` f oparwge.

Ynurf ub - 11 $\frac{1}{3}$ kv $\frac{5}{6}$;v hte[v pv.

Sarel -

$$\begin{aligned} \frac{1}{3} \# \frac{5}{6} &= \frac{1}{3} \$ \frac{5}{6} \text{ rvz` f oparwge} \\ &= \frac{1}{3} \$ \frac{6}{5} = \frac{6}{15} = \frac{2}{5} \text{ (hu\`e[su;u` lvka ;v reka zna)} \end{aligned}$$

Hnl ko vmv pv-

$$(l) \quad \frac{2}{7} \# \frac{3}{5} \quad (g) \quad \frac{7}{4} \# \frac{5}{6}$$

$$(k) \quad \frac{13}{5} \# \frac{5}{3}$$

I NE: U{ 2.3

1. Bhgahte[rekz pv-

$$(l) \quad 12 \# \frac{3}{4} \quad (g) \quad 8 \# \frac{7}{3} \quad (k) \quad 4 \# \frac{8}{5}$$

$$(q) \quad 3 \# \frac{6}{3} \quad (j) \quad 5 \# \frac{25}{7}$$

2. Bhga hte[ko reka jompv-

$$(l) \quad \frac{7}{3} \# 2 \quad (g) \quad \frac{3}{7} \# \frac{8}{7}$$

$$(k) \quad 3 \frac{1}{2} \# \frac{8}{3} \quad (q) \quad 4 \frac{1}{3} \# 3$$

$$(j) \quad 3 \frac{1}{2} \# 4$$

3. Bhga hate[ko rekz pv-

$$(l) \quad \frac{2}{5} \# \frac{1}{2} \quad (g) \quad \frac{3}{7} \# \frac{8}{7}$$

$$(k) \quad \frac{7}{2} \# \frac{8}{3} \quad (q) \quad \frac{2}{5} \# \frac{3}{2}$$

$$(j) \quad \frac{5}{2} \# \frac{6}{5}$$

4. $\frac{3}{5}$ metr mezd pe; z ; v $\frac{1}{5}$ metr k; v bnđe` e rv cemen bnđe`
hoba f i z`?

2.4 : u\` awka rv xahr –

: u\` awka ce ; u\` bhga awka f o mezd ; nga ; vz` rvna bhga awka
okon sf z bhga awka rvz` atel §, ¥, ¥0, 10 rvz` xahr p\` (gha; o) awka
hoba kno` a`, vn awka kv ; u\` l oo` ; v ol f i zo` a` . -

$$Jvmon - \frac{3}{8} = 0.3$$

$$2 \frac{27}{100} = 2.27 \text{ (vmn ; vmn)}$$

Cv; an` snm rvgv atel f o sma; u\` lvka sumw rvgv mvn`. Vna ; v
; u\` ko i f e k; v xarv f epel w f o ; u\` awkaz ; v bhga awka rv pl ta k; v B
xahr sgom f i za.

2.4.1. Bareza ; u\` awka rvz` xahr-

VI a bu 0.3 ar 1.5 kv bu xahr I vka` a`.

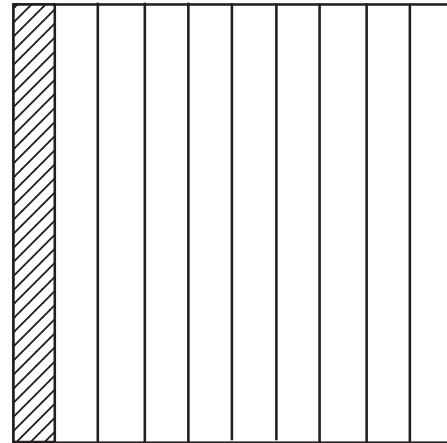
$$Jvmon\ 0.3\ \$\ 1.5 = \frac{3}{10}\ \$\ \frac{15}{10} = \frac{45}{100} = 0.45\ (hnl)$$

Nvl v pv, c; om ken rvz xahr sgom z ; v ; u\` awka ken rvz` xahr sgom f o nma kna. Atel ken rvz` xahr sgom mvnrvf o ¥ f o sumw xahr sgom f epel w ; u\` rvz` tzvd cena nww f v[ga kda. Vna ; v bu nvl kvda ce-

- Xahr rvz` ma[awka 0.3 ; v abu 3 bu i f e kvda ar f osr awka 1.5 z ; v abu 15 bu i f eza kda ar bareza awka ken xahr k; v gv 3 \$ 15 = 45 bu nma kda.
- Ma[awka rvz` ; u\` cnb mezd awka mvn` ar f osr awka rv zo ; u\` cnb mezd awka mvn` ar xahr sgom rvz` ; u\` awka bareza mvn` ; vz` bu af ana.
- Xahr sgomv ; vz` ma[awka rvz` ; u\` cnb awka 1 ar f osr awka rvz` ; u\` cnb awka 1 kv xh k; v bu nm kvda 2, ar xahr sgom rvz` ; u\` rvz` cnb awka o bu nma kda 2. Cel e k; v bareza ; u\` awka ken xahrv ; vz` goroj hobana , vl a bu nvl vza . Mnse[kel o mu; ed 8.50 tka ; v 2.50 kel o kl ra` kere[kvda. Vnf o kere[a kd krl a l gvd f oknf ar kv cemen tka` vmi za ? Apv bd gvpv mvnvza ce mnse[f okn f ar kv vmi za= (8.50 \$ 2.50) tka. Nvn;` rv nvl vpv 8.5 ar 2.5 ken mepezd ; u\` awka ken. Vna ; v nvn;` rv ; u\` awka ken kv xahrv ; v hobao` a`. VI a bu xahrv ; vz` kv ondo` mexa bu nvl I vka`.
- Nvn;` rv mezd kgojo pote kv cemen bhga kna?
- Mu; ed bhga hobao` ; na kgojo pote rvz` $\frac{1}{10}$ ce 0.1 p\` . Vna gv szka rvz` cemen p\` ? Ondo` gv kgojo pote cv; n rv v; omv ; v koqv ; v okoa ko bi k; v pote kv \$ somn bhga rv hate[a kna. (szka 2.8)



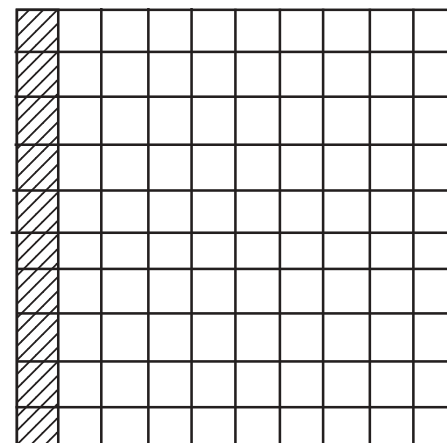
vna ; v szka 2.7 rv yf uba kn ; vz`
szka gv somana \$ he; d rv hate[a kna ar
snm kgojo pote f o = \$\$\$ = ¥ za somn bhga
rv hate[a kna.



(szka 2.7)

Vn; v szka 2.8 rv mvn` ghr cena
p\` f o pote rvz` cemen p\` ?
Abu kje f i za ce, ghr cena p\` f o pote
rvz` gota z ; v $\frac{1}{10}$ rvz` $\frac{1}{10}$ p\` ce 0.1

rvz` 0.1 p\` = 0.1 \$ 0.1 p\`. Vnf o gota
pote kv ju f e 1 mvn; v bu mvnvza, vnf o ghr
cena p\` f o 0.1 \$ 0.1 gv` i [gul vza.
Mvnf o nvnp\` f o gota kgojo rvz` ¥ somn
bhga z ; v 1 p\` ; v nvna rvz` $\frac{1}{100}$ ce
0.01, vna ; v 0.01 \$ 0.01 = 0.01



(szka 2.8)

- **Vla bu , 0.2 \$ 0.3 = cemen hoba
na telke pv ?**

Szka 2.9 rv mezd kgojo pote kv v; om koqjv ghr k; v \$ za somn
bhga rv hte[a kna. Vn 10 za be; arv ; v 2 za ar` r[; v chka kna. Ondo`
gv cv; n l ; ar ghr ; v pote kv \$ za smn bhga rv hate[a kna ar vnz ; v 3
za f o hwwf v r[; v chka kna. Vna ; v ar` ar hwwf v r[ken ; v okon p\`
chka kna, Vna gota pote rvz` $\frac{2}{10}$ p\` rvz` $\frac{3}{10}$ p\` ce 0.2 rvz`
0.3 Vnl vka ce 0.2 \$ 0.3 hobn ; na. Mvnf o gota pote f o \$\$\$ = ¥



G } ED

hu\le[hu\le[okoa rv hate[hundeza kna. Vn rv ar` ar hwwf v r[ken mvn`
p\` f o 2 \$ 3 = 6 za okoa mvn` ; vz` bu nvl v ; na. Nvnpl` rv gota 100
okoa z ; v 6 za okoa mvn` ; vz` , vna hobao` ; na gota pote rvz` $\frac{6}{\text{¥}}$

ce 0.06 p\`. Vna ; vbu nvl kvda ce 0.2 \$ 0.3 = 0.6. Vnf o ; u\`
awka rvz` xahr celeka hobao` a` vl a bu nvl vza, 0.2 \$ 0.3
: u\` kv bf k ; v bu ol vza, vnf o 2 \$ 3 = 6

Ma[awka 0.2 rv ; u\` rvz` cnb awka = 1 f osr awka 0.3 rv ; u\` rv cnb
awka=1. Barn awka rv ; u\` awka cnb gota awka lvka = 1 + 1 = 2

Vna ; v xahr sgom rv ; u\` awka cnb 2 za awka ken ; i na. Vna ; v cv ; n
rv bu nma kd xahr sgom 6 \$ 06 lvka ; v bu ol vza. Vna ; v f o xahr sgom
rvz` guyn f o ka bof ol o` a`. Vnf o naw` f obu nvl kvda –

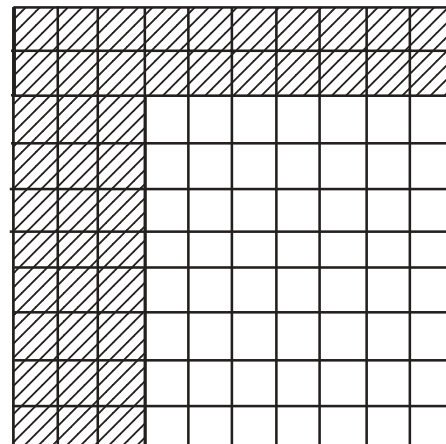
Naw` f o l ; ar apeza bara rv xahr sgoma kna.

Ma[bara- 0.2 \$ 0.3 rv f o 2 \$ 3 = 6 .

Fosr bara- Ma[ar f osr bran awka rv
; u\` cnb sbvn awka=1 + 1=2.

: vsr bara- Nma kn xahr sgom 6 rvz` v ; om
rv mezd xun(p[) jotao k ; v nvna kv f ukm rvbu
pl ta k ; v bu nmvza 06 .

Pun bara- Nma kn xahr sgom rvz` koqjv
pz ; v 2 za awka bgv k ; v ; u\` k ; v bu nm
kvda .06 ce 0.06 , vnf o
0.2 \$ 0.3 = 0.06 .



(szka 2.9)

Ynu f ub-12-

1.1 ar 2.5 rvz` xahr sgom nmv pv.

Ma[bara- 12 \$ 25 = 300

Fosr bara- Barn awka ken rvz` ; u\` cnaba rvz` sbvn awka=1+1=2



G } ED

: vsr bara- Xahr sgom rvz` koqjv pz ; v bareza awka bgv kv ; v ; u\` z
rvf o B nmv za $3.00. 1.2 \$ 2. 5 = 3.00$ ce 3

Xahrsgomvpv-

(l) 0.5 \$ 0.6

(g) 0.8 \$ 1.6

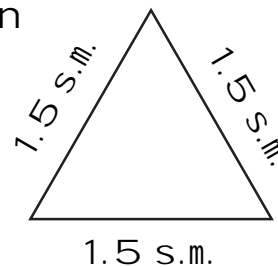
(k) 2.4 \$ 4.2

(q) 1.5 \$ 1.25

YnuF ub-13

Mezd somn ko; o 'V' (; rebhujo) rvz` mezd ko; o rvz`
jel e[1.5 s.m. rvf o, V rvz` apeza ko; o f o cemen
hobao` a` ?

Somn ko; o V rvz` apeza f o
 $= 3 \$ 1.5 = 4.5$ s.m.



YnuF ub-14-

Mezd ypun kon ; vz` rvz` jel e[ar osar f o 73.5 s.m. ar 0.15
metr mvn` rvf o vn ypun kon ; vz` rvz` vnvsr (khv; ropho\o) cemen?
Ypun kon ; vz` rvz` jel e[= 73.5 s.m. = 0.735 metr, vnka gv osar
f o = 0.15 metr.

Vnrvf o ypun kon ; vz` rvz` vnvsr = jel e[\$ osr = $(0.735 \$ 0.15)$
dede metr = 0.11025 dede metr (hnl).

AFA NA CEPV ?

$1 \text{ metr} = \text{¥ s.m.}$ ar $1 \text{ s.m.} = \frac{1}{\text{¥}} \text{ metr.}$

: u\` awka kv mezd xhp\` pir awka ; v celeka xahr sgomo` a` B
nvlvza- $0.4 \$ 8 = ?$. Nvn; ` rv ma[awka rvz` ; u\` cnba awka f o 1 gv ar
f osr awka rvz` jv; n ; u\` gv bno` a`. Vna ; v barn awka rv mvn` ; u\`

G } E D

cnba rv awka f o 1 gvza. Vna ;v xahr sgom rvz` kojv pz ;v mezd awka bgv k;v ;u\` cena vmo` a`. Vnrvf o, $0.4 \$ 8 = 3.2$.

8.0 lvkn awka kv xahr sgomv ;vz` mvn` rvf o, ;u\` cnb rv jv; n awka gv bno` a` mvn;v bu yu` za. Cn` ce $8.0 = 8$. Mvnf o 8.04 ju f e ; i kn rvf o, nvn;` rv ;u\` cnb awka 2 za mvn;v bu mvnvza. 8.04 rvf o ;u\` cnba awka f o 1 gv mvn;v bu mvnvza, cvn` ce $8.40 = 8.4$

2.4.2 : u\` awka kv \$, ¥, ¥0 lvkan awka ;v xahr-

Abu af ana bu, mezd ;u\` awka kv bhgap\` awka rv pltz rv, vna rvz` atel ju f e \$, ¥ ce ¥0 lvkn awka ; i n rvf o-

$$0.2 = \frac{2}{10}, 0.34 = \frac{34}{¥}, 0.042 = \frac{42}{100} \text{ vmn ; vmn.}$$

Naw` f o mezd ;u\` awka kv \$, ¥, ¥0 lvka n` ;v bu xahr lvka`.

$$0.2 \$ \$ = \frac{2}{\$} \$ \$ = 2 \text{ ce } 2.0$$

Nvn;` rvbu nvl kvda ce Muy\`u awka 0.2 ce 0.20 rvz` ;u\` rvz` mezd bgv k;v kojv ;v i f e k;v 2 rvz` kojv kute rv rekz rv xahr sgom nmo` ; na.

$$\text{Vnka ;v } 0.5 \$ 100 = \frac{5}{10} \$ 100 = \frac{500}{10} = \gg \text{ ce } 50.0$$

Nvn;` rvbu nvl kvda, muy\`u awka 0.5 ce 0.500 rvz` ;u\` f o bareza bgv k;v 5 rvz` cnb ma[xun rvz` kojv rv rekz rv xahr sgom nmo` ; na.

Vna ;v bu nvl kvda ce-Mezd ;u\` awka kv \$, ¥, ¥0 lvkn awka ;v xahr rvf o xahr ; n ime;w xahr ;vz` awka (;u\` awka) rvz` awka rv jan bonof ol ko ka hoban ; na. Sma ;u\` cena rvz` gv bof ol hoban ; na. Vnf o ;u\` cena rvz` cvkn bof ol hobn ; na mexa bu nvl vza.

G } E D

- (l) Mezd ; u\` awka 10 ; v xahrv ; n f epel w, ; u\` cena mezd tzvd koqjv svno\` ; na.
- (g) mezd ; u\` awka kv ¥ ; v xahr sgomv ; n f epel w f o ; u\` cena f o bareza tzvd koqjv ; v a ; om svno\` ; na.
- (k) Mezd ; u\` awka kv 1000 ; v xahr sgomv ; n f epel w f o ; u\` cena f o apeza tzvd koqjv pa ; v a ; om svno\` a\` . Nvl v pv- xahr sgom rv ; u\` cena cemen tzvd koqjv ; v svno\` a\` , ju f e muy\ u ; u\` awka rvz\` ; u\` cena cnb vna rvz\` kom tzvd ; i na , vn rvf o muy\ u ; u\` awka cnb f orkar o\ [p\ ko reka kv ; v ; u\` cena kv a ; om i f eza kna. Jvmon 3.2 \$ 1000 rvz\` xahr sgom bu ol l v za. Nvn xahr rvz\` sgom nm l gvd f o ; u\` cena kv apeza tzvd koqjv pa ; v a ; o mv goroja. Mvnf o ; u\` cena cnb sumw mezd gv mvn\` . Vna ; v ; u\` awka 3.2 cnb vnka ; v bareza p\ bu vm ondo\` ; a\` a\` . $3.2 \$ 1000 = 3.20000 \$ 1000 = 3200.0$.

Xahr sgom ko ol v pv-

- (l) 3.4 \$ 10=? (g) 0.56 \$ 100=?
- (k) 1.0441000=? (q) 0.3 \$ 100=?
1. P[ka ko f o pvr v\` ; a pv-
- (l) : u\` awka kv 100 ; v xahrv f epel w, ; u\` cena.....tzvd koqjv pa ; v svsvna.
- (g) : u\` awka 1000 ; v xahrv ; n f epel w f o ; u\` cenatzvd koqjv pa ; v svsvna.

I NE: U{ 2.4

1. Xahr sgomv pv.
- (l) 0.2 \$ 6 (g) 8 \$ 4.3 (k) 2.71 \$ 5
- (q) 1.1 \$ 4 (j) 211.02 \$ 4 (c) 3.4 \$ 5.0 .



2. Xahr sgomv pv-
 (l) 1.3 \$ 10 (g) 36.8 \$ 10
 (k) 31.5 \$ 100 (q) 1.56 \$ 100
 (j) 0.5 \$ 100 (c) 13.27 \$ 100
3. Xahr sgomv pv-
 (l) 2.5 \$ 0.3 (g) 0.1 \$ 21.8
 (k) 1.3 \$ 3.1 (q) 0.5 \$ 0.005
 (j) 11.2 \$ 0.13 (c) 1.07 \$ 0.02.
4. Mezd ypun kon ; vz` szka rvz` jle[ar osr f o 5.7 ar 3 s.m. rvf o, nvna rvz` sbvn ko; o ar hosa gnde (khv; ropho\o) f o cemen?
5. Juf e mezd ko\o g\e (Scooter) 1 letr pvtrol rv 55 k.m. svno` a` , vn rvf o 8.4 letr pvtrol rv cemen sne[svno` a`?
6. Mezd f`a gonoca rv f`a 115.73 letr hb` ; i na. Impezv 12 f`a gonoca rvf o cemen f`a ; i na?

2.5. : u\` awka rv hnate[-

L\u ar jno ar jewge vmn apvho mexeza ko. L\u mrwa. L\u ;` rv 7.5 metr pe; a mvn`. Vna kv V apw bnede` k;v hte[v` ; vz` snw zna. V celek` hate[vza ar mu; ed bnede` cempezv jle[k;v hobao` a` ? V y\u` kvda pe; a 12metr rvf o honw, somn apw bhga/bnede` kvd` honw ar 12 kv 3 ; v` bara hte[kvda honw . Vn f o nvni;` f o naw` f o 7.5 kv 3 bhga z` , V y\u` kvda ce mezd ; u\` awka kv mezd xhp\` pi r awka ; v bara hte[v; oz ; v hobao` a` .

Nraa ako bara rvz` cemezv p\` r[kgojo rv sjao rv` lga; e[zna. V ;` rv 19.5 metr jle[; vz` r[kgojo pote ; i kvna, vnf o V vnz ; v 1.5 metr l vka ; v cemenw r[kgojo` nmvza? Nraa y\u` kvda –

(I) Cemezw genei x ko rvz` menexa z ; v ol l v mu; ed somn awka genei x ko ol l v rv bara hate[o` a`. Jvmon Æ yl e kv bara bare 5 bara rv hate[v rv f o Æ kv 5 ; v bara hate[o` a`.

- Vn l vka gv 7 metr jel e[pe; a kv somn 3 bara rv bhga hate[v l gvd 7.3 kv 3 ;vbu bara hate[vza.Ondo` gv 19.5 metr potei ; v 1.5 metr kvv ; v kvc` hte[v rv f o cemenw pote bn de` hobao` a` vna atkarv l gvd f o 19.5 kv 1.5 ; v bara hate[v goroja.

Naw` f 0 231.5 # 10 he;d bu nmvza.

$$\text{Karv} \frac{231.5}{10} = \frac{231.5 \text{ \$ } 10}{10 \text{ \$ } 10} = \frac{2315}{100} = 23.15$$

67

Vn Ivka gv 231.5 # 100

$$= \frac{231.5}{100} = \frac{231.5 \text{ \$ } 10}{100 \text{ \$ } 10} = \frac{2315}{1000} = 2.315$$

ar 231.5 # 1000

$$= \frac{231.5}{1000} = \frac{231.5 \text{ \$ } 10}{1000 \text{ \$ } 10} = \frac{2315}{10000} = 0.2315$$

- * Mezd ; u\` awka kv 10 ; v bara hate[v rv okon he; d hte[nmo` a`, vn
rv bhgap\` rvz` ; u\` cena f o vna rvz` azar` tzv dv ; v cemez
tzv dv ; om ; v svno` ; vz` bu nvl a kda.
- * Mezd ; u\` awka kv 100 ar 1000 ; v bara hate[v rv ; u\` cena f o
v ; om ; v cemen tzv d svsvn ; na nvl v pv. He; d hate[nmv ; vz` nvna
mezd sojv ar aqja hora ; na.

Hnl vmv pv-

- (l) 125 # 10 he;d hate[f o cemen ?
(g) 135.41 # 100=?
(k) 123.5 # 1000=?

2.5.2 : u\` awka kv pi r awka ;v bara hate[

Naw` f o vl a bu 6.4 kv 2 ; v bu hate[vza. Af a nabu, 10 = 2 \$ 5

Vn l vka gv 100 = 2 \$ 5 \$ 2 \$ 5, Vnf o 10, 100, 1000 juf e awka koa`
muy\ u xahr honko (gu) onezoko) vnf o sumw 2 ar 5 ; na. Azar` bara
hate[rv nvl vka bu reka joka l vda.

$$6.4 \# 2 = \frac{6.4}{2}$$

$$= \frac{6.4 \$ 5}{2 \$ 5} = \frac{32.0}{10} = 3.20$$

Vn l vka gv-

$$3.6 \# 5 = \frac{3.6}{5} = \frac{3.6 \$ 2}{5 \$ 2} = \frac{7.2}{10} = 0.72$$

$$\begin{aligned}
 7.8 \# 4 &= \frac{7.8}{4} = \frac{7.8}{2\$ 2} = \frac{7.8\$ 5 \$ 5}{2 \$ 2 \$ 5 \$ 5} \\
 &= \frac{7.8 \$ 25}{100} = \frac{195.0}{100} = 1.95
 \end{aligned}$$

(atel rvz` xahr hon ken 2 ; n ; v vn rv 2 za 5 xahr ondo` f orkar zna.)

Cerglv pv, hate[ne` awka rvz` muy\u xahr hon ken gon[sumw 2 ar 5 ; n rvf o nvlvka bi zo` a`. Hate[ne` awka rvz` muy\u xahr honko be; ar rv 2 ar 5 ; nga f pi awka ; na vnf o cvn` bu ceka za ? vl a bu vn kn` mezd bu hate[lvka` .

$$23.8 \# 7 = \frac{238}{10} \# 7 \text{ (ma[bara)}$$

$$\frac{238}{10} \$ \frac{1}{7} = \frac{238 \$ 1}{10 \$ 7} \text{ (Fosr bara)}$$

$$\frac{238 \$ 1}{7 \$ 10} = \frac{238}{7} \$ \frac{1}{10} \text{ (; vsr bara)}$$

$$34 \$ \frac{1}{10} = \frac{34}{10} \text{ (pun bara)}$$

$$= 3.4 \text{ (mod bara)}$$

Bara hate[rvz` bohr-

Ma[bara - Hate[o` ; vz` rv mvn` ; u\` awka kv bhgap\` awka rv pl ta zna.

Fosr bara - Hate[o` ; vz` f o hate[; vne` f oparwge l oo` xahra kna.

: vsr bara - Bhgap\` rvz` xahr bohr nv n rv reka zna.

Ypun bara - Atel rv xahr rvz` smpuy (kromobenemoi) bohr reka kna

Mo] v bara - Pi r awka rv mvn` bara hate[rvz` he;d hate[ol l v zna ar $\frac{1}{10}$; v nvna xahr k; v vna ; u\` awka rv pl ta zna.

Hnl cemen hobao` a` ol v pv-

$$\begin{aligned} \text{(I)} \quad 24.45 \# 0.5 \\ &= \frac{24.45}{0.5} = \frac{24.45 \$ 10}{0.5 \$ 10} \text{ (atel kv pi r awka rv reka zna)} \\ &= \frac{244.5}{5} = \frac{244.5 \$ 5 \$ 2}{5 \$ 2} \text{ (atel kv 10 rv reka zna)} \\ &= \frac{489.0}{10} = 48.9 \end{aligned}$$

$$\begin{aligned} \text{(g)} \quad 24.01 \# 0.7 \\ &= \frac{2401}{100} \# \frac{7}{10} \\ &= \frac{2401}{100} \$ \frac{10}{7} = \frac{2401}{10} \$ \frac{1}{7} \text{ (c; om ar atel kv 10 ; v ktao zna)} \\ &= \frac{2401}{7} \$ \frac{1}{10} = 343 \$ \frac{1}{10} \\ &= 34.3 \end{aligned}$$

Hnl cemen hobao` a` ol v pv-

$$\text{(I)} \quad 32.72 \# 4 \quad \text{(g)} \quad 48.6 \# 0.9 \quad \text{(k)} \quad 90.48 \# 1.2$$

Ynuf ub - 15

Mezd hora rvz` jele[150 metr. Hora kute rv 12.5 metr sa- pne[rv hecer sv[gl kuntu bedo`a`, Hora rvz` mucd rv mezd kuntu bedo` rvf o hora kute kute ; v sbvn rv cemen kuntu bedo` a`?

G} ED

Sarel - Mu; ed babareza kuntu ken be; ar rv 12.5 metr sa-pnerv mvn`.
 Hora rvz` jel e[f o 150 metr

$$\begin{aligned} \text{Sapne[f o} &= \frac{15}{12.5} = \frac{150 \$ 10}{12.5 \$ 10} \\ &= \frac{1500}{125} = \frac{60}{5} \quad (\text{atel ar c; om ken 25 ; v ktao zna}) \\ &= 12. \text{ Kuntu ko f o} = 12+1 = 13 \text{ (hnl)} \end{aligned}$$

Ynuf ub-16

Mezd swge ko; o ; vz` kn vsvd rvz` mezd ko; o rvz` jel e[=2.5 s.m.
 Vna rvz` sbvn ko; o=12.5 s.m. rvf o swge ko; o ; vz` cemen ko; o ; vza?
 Sarel -

Swge ko; o=mu; ed ko; o rvz` awka \$ cemenw ko; o

$$\begin{aligned} \text{Vnrvf o ko; o ko} &= \frac{\text{swge ko; o}}{\text{mu; ed ko; o rvz` jel e[}} \\ &= \frac{12.5}{2.5} = \frac{12.5 \$ 10}{2.5 \$ 10} \\ &= \frac{125}{25} = 5 \end{aligned}$$

Naw` kje pv atel ar c; om rv 10 xahra kna cvn` rvz` vn rv ju f e
 100 xahr lvn rvf o hnl cemen hoba zna honw ?



G } ED

: VHRA CT~

CE: E G}ED

1.1 Abu jabu af a na-

L; ar bara pa rv abu svsvn awka (co\o rxe), ce; e awka ar loo`
; vz` ju\e g; e rvz` g; e sgi (sohogo s[porko) ko bu af a na . VI a bu
ondo` mexa bu phm lvka`.

Svsvn awka-

Ma[; v ce; e g] ed rv svsvn awka rvz` goroj bexz rv bu hvl o dobo`
l w gv. Svsvn awka kv $x, y, 1, m \dots$ kv onol ce; e ko mv;`. Ma[nu; um mu; ed
ce; e jv; n mezd awkav i [gul vza. Vnrvf o, Mezd ce; e rvz` jv; n mezd gon[
bno` f epel w; ; vpvndvr(f hrubwko) korvz` gon[f o ka bof ol o` a`.

Poof ar g] ed awka-

Svsvn awka ar ; vpvndvr awka ko ; v poof rvz` xerjon. Cemez w
poof ko i f e k; v mepezd ce; e g] ed awka ko bi za kno` a`. Vna l gvd
l ; ar ynuf ub kobu nvl vgv-

$4x+5$ f o ce; eg] ed awka ; na. $4x$ ar 5 cv; n awka rvz` mezd poof
; na. Vn lvka gv $3 - 4xy + 5x^2 10y - x$ vmn mepezd ce; e g] ed awka ko ; na.
Vn awka rv mvn` a kd x ar y f o mepezd svsvn awka.

$3 - 4xy + 5x^2$ mezd apvh poof ; vz` ce; e awka, vnka gv $10y - x$ f o
bar poof ; vz` ce; e g] ed ; na. Apv af a svka npv bareza karv swge
poof ; vz` awka f o swge poof ; vz` ce; e g] ed ko mv;`. Abu af a na bu
ce mezd poof rv mvn` bareza onol l (y; paf oko) ken be; arv ; v mezd
ondo` mezd rvz` g; e(sohogo) ko mv;`. Ynuf ub lvka ; v f o-

$2ab$ poof rvz` 2 f o mezd awka g; e ; na. $2a, b$ rvz` g; e ar $2b, a$ rvz` g; e
; na. Vnka ; v 2 f o ab rvz` g; e mvn; v mvno` a`.

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MEDGV AR BG\A POOF

Poof kofo ce; e kol o` ce; e ko somana ar ce; e ko l ; ar awka (gha; o) med gv rvfo , vna fo medgvn poof ka rvfo bg\ a poof ko mvnvza.

Ynufo ub l vka ; v-

$12x, -2x, 7x, x$ vmn medgvn poof ; na.

$7xy, 3x^2y, -2x$ vmn fo bg\ a poof ; na.

I NE: U{ - 3.1

1. L; ar ce; e g] ed awka ko rvz` poof ko cemperr` ol v pv ar vna ko ; nga f pi e pv?

- | | | |
|-------------------|---------------------------|-----------------|
| (l) $-4x + 5$ | (g) $-4x + 5y$ | (k) $3y + 2y^2$ |
| (q) $1 + x + x^2$ | (j) $5xy^2 + 5x^2y - 3xy$ | (c) $Pq + q$ |
| (l) $4p^2 - 3q^2$ | (d) $2x + \frac{1}{4}$ | |

2. Vma kn ce; e g] ed awka rvz` ; vpvndvr awka vt` i pm mu; ed poof rvz` awka gv; e ko ol v pv.

- | | | |
|--------------------|----------------------|---------------------|
| (l) $5 - 3t^2$ | (g) $7xy - 5x^2 - 2$ | (k) $-p^2q^2 + 7pq$ |
| (q) $x + 2xy + 3y$ | (j) $m + 3n$ | |

3. X svsvn awka rvz` poof ko cen z pv ar poof rv x rvz` g; e ko cen z pv-

- | | | |
|-----------------|-------------------|------------------|
| (l) $xy^2 + x$ | (g) $13y^2 - 8xy$ | (k) $2 - x$ |
| (q) $x + y + 2$ | (j) $12xy^2 + 25$ | (c) $7xy + xy^2$ |

4. Mvn` ; vz` med gvn poof ko med ; ` k; v ol v pv-

- | |
|---|
| (l) $4 - xy^2, -4yx^2, 8x^2, 2xy^2, 7y, -11x^2, -100x, -11yz, 20x^2y, 5x, -3$ |
| (g) $10pq, 7p, 8q, p^3q^2, -7qp, -100p, -23, 12q^2p^2, -3p, 7,$ |
| $20q^{2p^3}, 78pq, 13p^2q, qp^2 - 701p.$ |

3.2 Ce; e awka ko rvz` bov ar xh-

L; ar rvz` kje ko joka nvl no`oz pv.

Ma[kje- Mezd joo f oknw ; v ni ke cemen joo` kere[l vda, sekur vna rvz` f obolei ; v apeza kom gv l embudv` kere[l vda. Juf e abu ni ke kere[l vd l embud awka honw bu atkar ; a`, vnf o sekur kere[; a l ebud awka gvbu atkar f i za gvza. Vla bu vnf o ni ke kere[; a l ebud awka f o svsvn awka x ; vbu cena za.

Vn rvf o, abu ylu` i za ce ni ke kere[l vd l embud awka f o = x, naw` f o ni ke ar sekur baro gota rv cemen l embud ken kere[l vda, vna atakrv ; vz` bu kurumutu na. Ni ke ar sekur kere[l vd gota gote l embud awka, af z l gvd x, ar f o le ; v 3 za kom mvnrvvf o = x rvx` f obole f o = 2x ar 3 za kom mvnrvvf o = 2x - 3 kv xh medv ; vz` goroja. X ar 2x - 3 me pezd ce; e g] ed awka ; na. Nvn bareza awka gv xh med l w rvf o ni ke ar sekur kere[l vd l embud ko nm f i zo` a`.

Fosr kje-

Mezd x metr jel e[ar y metr osr ; vz` mezd ypun kon opande (azo; o khv; ro) rvz` hosagnde (khv; ropfo\o) ; ` az ; v mezd sbvn opande somn (borgo khv; ro) ; vz` rvz` hosagnde f o 15 pt` metr (borgo metr) l na` mvn` f epelw, vt` mezd sbvn opnde somn ; vz` rvz` hosa gnde l oo` 7 pt` metr koma. Vnf o ma[ypun kon opndei ; v cnb ypun kon opande rvz` hosa gnde cemen l na` a`.

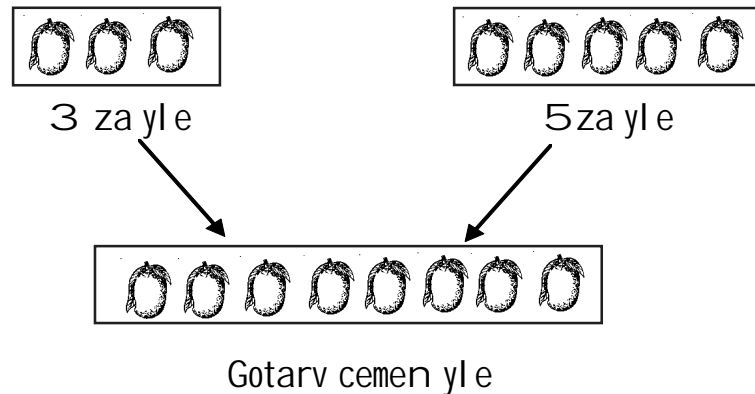
Nvn; ` rv ypun kon opnde rvz` hosagnde = $(xy + 15)$ metr.

Fosr sbvn opnde somn ; vz` r` hosa gnde = $xy - 7$ pt` metr. Kono` rvz` hnl nmv l gvd f o $(xy + 15)$ ar $(xy - 7)$ ce; e g] ed awka ken rvz` bov sarv` ol l v ; v hobao` a`. Cv; n no; or brn ken rvz` kje rvz` hnl nmv l gvd abu ce; e g] ed awka korv bov ar xh cel eka hoba na, vna v; on f orkara. L; ar



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bara rv abu joka joka medgvn poof korv bov ar xh rvz` bu af a ba kda. V l a bu phm yra l vka` a`.



Abu nvl kvda 3 yl e+ 5 yl e=.....yl e.

3 yl e ar 5 kf al med;` kv rvf o B mvrnva 8 yl e ce karv kf al . Abu nvl kvda 2 knce rv mvn` med rokom joo ko med ;` kv rv joo ko rvz` awka medo` ; na. Vna hoba zna medgvn poof rvz` cena ; na. Mvnf o ; nga- f pi joo ken rvz` xhmed f o kamexa na. Nvna f o bg\ a poof rvz` cena ; na. Nvna ko ce; e g] ed awka rvz` xh l vka ; vbu cergl l vka`.

Ynuf ub-1

3x ar 4x rvz` xh med bu nvl vza.

Sarel -

$$3x + 4x = 3\$x + 4\$x$$

$$= (3 + 4)\$x$$

$$= 7\$x = 7x. \text{ (Awka ko rv cl aoa kn hpate[nezm ; v hoba zna)}$$

Vnrvf o $3x + 4x = 7x$.



Ynuf ub - 2

$2xy$, $3xy$ ar $5xy$ kv xh medvpv.

Sarel -

$$\begin{aligned} 2xy + 3xy + 5xy &= 2\$ xy + 3\$ xy + 5\$ xy \\ &= (2 + 3 + 5)\$ xy = 10\$ xy = 10xy \end{aligned}$$

Vna ; v- $2xy + 3xy + 5xy = 10xy$.

Ynuf ub - 3

$5ab$; v $3ab$ bu bov za.

Sarel -

$$5ab - 3ab = 5\$ ab - 3\$ ab = (5 - 3)\$ ab = 2\$ ab = 2ab \text{ (hpate[nezm ; v)}$$

Y\w` rekz pv-

Bg\la pof` ko rvz` xh ar bov ; vf o mezd nma poof` f o ka nmo` a`

Jvmon $2x^2$ ar $3xy$ rvz` xh med f o = $2x^2 + 3xy$

3.2.1. Ce; e awka ko rvz` xh med-

Ynuf ub - 4.

Sarel v pv- $7x - 3y - 2x + 7y - 4x$

$$\begin{aligned} &7x - 3y - 2x + 7y - 4x \\ &= 7x - 2x - 4x - 3y + 7y \\ &= (7 - 2 - 4)x + \{(-3) + 7\}y \\ &= (7 - 6)x + (7 - 3)y \\ &= 1\$ x + 4\$ y = x + 4y. \end{aligned}$$

Cv; n rv vma kn ynuf ub kv nvl kw; v l ; ar kono` ko rvz` hnl vmv pv-

- Okon g] ed rvz` anarxl kv sarel v l gvd kjeza kna?
- Nvn g] ed rvz` anarxl rv gota rv cemen poof` mvn` ar vna kof o cvn` ?
- x ce; e mvn` poof` ar y ce; e mvn` poof` ko cen z pv?

- Nvn anarxl rv mvn` medgvn poof` ko med;` k; v ol pn; ei rv cvn` bu nmvza?
- Naw` xmvn` ; vz` ce; e g] ed ko xh cemena?
- y mvn` ; vz` poof` ko rvz` xh cemena ?
- Hnl ko cemen pv nm kvda?

Ynuf ub

$2x - 5y - 8$ ar $4x - 3y$ xh mened $6x + 2y - 8$

Xh medv pv $3x^2 - 6x - 2$, $8x + 5 - x^2$, $-4 + x + 2x^2$

Ma[hora - xhme d = $3x^2 - 6x - 2 + 8x + 5 - x^2 - 4 + x + 2x^2$

$$= 3x^2 - x^2 + 2x^2 - 6x + 8x - 2 + 5 - 4$$

$$= (3 - 1 + 2)x^2 \{(-6 + 8 + 1)\} x - 2 + 5 - 4$$

$$= (3 + 2 - 1)x^2 + (8 + 1 - 6)x + 5 - 2 - 4$$

$$= 4x^2 + 3x - 1.$$

Naw` f o $4a + 3b - 3c$; v $4c - 2a + 2b$ kvbu bov ol l za.

= $(4a + 3b - 3c) - (4c - 2a + 2b)$ Bov ol l o` ; n awka rvz` mu; ed smpuy kv xh medo`

; na = $4a + 3b - 3c - 4c + 2a - 2b$ (med gvn poof` ko med;` ao` ; na) = $4a + 2a + 3b - 2b - 3c - 4c$ (medgvn` ko xhmedo` ; na) = $(4 + 2)a + (3 - 2)b + [(-3) + (-4)]c = 6a + b - 7c.$

Hnl f o hobao` ; na = $6a + b - 7c.$

I NE{U{ 3.3

1. Bov ol l v pv-

(l) $-5y^2$; v y^2 (g) $-2xy$; v $6xy$ (k) $3ab$; v $-2ab$ (q) $-8xyz$; v $7xyz$

(j) $5mn$; v $3mn$ (c) $-7xy$; v $-8xz$

2. Bov v\`z pv- (l) $5a + b$; v $3a - 2b$ (g) $5xy - 4zyz - 2xy$; v $3xyz + 5xy - 2xy$

(k) $5p - q - 2r$; v $3p - 2q + r$ (q) $-m^2 + 5mn + 2n^2$; v $4m^2 - 3mn + 5n^2.$

3. (l) $2x$ l oo` okon awka xh medv rv hoba na $5x.$



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- (g) $7xy$ loo` cemez w xh med v rv $3xy$ hobao` a`?
- (k) $x^2 + xy + y^2$ rv okon awka xhmed ; a rv hoba na $2x^2 + 3xy$?
- (q) $8x^2y$; v okon awka bov ol l ; a rv hobana $3x^2y$.
- (j) $2a + 8b + 10$; v okon awka bov ol l ; a rv hobao` a $-3a + 7b + 16$
- (c) $x^2 - 2xy + 3y^2$; v $-x^2 + 5xy - 2y^2$ f o pur` a?
4. (l) $2xy - zy - zx$ ar $2yz - zx + xy$ rvz` xh med $xy - yz - zx$ f o bov ol l v pv.
- (g) $3x - y + 11$ ar $-y - 11$ xh med ken $4x - 3y + 5$; v cemen koma?
- (k) $2x + y - 3z$ ar $x - y + z$ rvz` xhmed ken $5x - 7y + z$; v cemen l a` a?



G } E D

Lvka awka	Pronouciation	Numbers
1	cdùp	1
2	edù	2
3	_dù	3
4	_é'p	4
5	cWp	5
6	Zé'p	6
7	Adù	7
8	ef'p	8
9	ùedù	9
§	ùMf'p	10
¶	j ò ò	20
β	\@i ò	30
Æ	edù i ò	40
»	edù i ùMf'p	50
œ	_dù i ò	60
«	_dù i ùMf'p	70
μ	_é'p ò	80
	_é' i ùMf'p	90
¥	ùgù	100



G } E D

1
10
100
1000
10000
100000
1000000
10000000
100000000
1000000000
10000000000
100000000000
1000000000000
10000000000000
100000000000000
1000000000000000
10000000000000000
100000000000000000
1000000000000000000



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